

United States
1 1309
Circuit Court of Appeals

For the Ninth Circuit.

Transcript of Record.
(IN THREE VOLUMES.)

ALASKA JUNEAU GOLD MINING COM-
PANY, a Corporation,

Plaintiff in Error,

vs.

ISADORE GOLDSTEIN,

Defendant in Error.

VOLUME II.
(Pages 385 to 768, Inclusive.)

Upon Writ of Error to the United States District Court of the
District of Alaska, Division No. 1.

FILED
FEB 20 1922
F. D. MONCKTON,
CLERK.

United States
Circuit Court of Appeals

For the Ninth Circuit.

Transcript of Record.

(IN THREE VOLUMES.)

ALASKA JUNEAU GOLD MINING COM-
PANY, a Corporation,

Plaintiff in Error,

vs.

ISADORE GOLDSTEIN,

Defendant in Error.

VOLUME II.

(Pages 385 to 768, Inclusive.)

Upon Writ of Error to the United States District Court of the
District of Alaska, Division No. 1.

(Testimony of Frank Harris.)

Q. All right—was there quite a pile of rocks there when you were there on the 2d day of January? A. No, sir.

Q. You are positive about that? A. I am, sir.

Q. Just as positive of that as you are of anything else that you have been testifying to?

A. Yes, sir.

Q. That it wasn't there? A. Yes, sir.

Q. I am referring to the pile of rocks that appears to be right about under the spout there?

A. Right here, Mr. Hellenthal, is it not?

Q. Yes, that pile right under the spout.

A. That is the one I had reference to.

Q. On Plaintiff's Exhibit "J" the pile of rocks that shows there right below the spout, wasn't there when you were there on the [324] 2d day of January, 1920—that is right, isn't it?

A. That is right.

Q. Referring again now to Exhibit "J," I want you to tell me where that hole was that had been washed in there under the spout—where it would show on that picture.

A. This looks better, Mr. Hellenthal.

Q. That is the same picture.

A. The same picture?

Q. Yes, isn't it? A. I should say not.

Q. Was that pile of rocks there under the spout when you were there?

A. Not that I have any recollection of. This spout is familiar, though.

Q. That spout looks better to you?

(Testimony of Frank Harris.)

A. That is it.

Q. But the rest of the picture—the ground under the spout—is that any different?

A. Well, from this picture it looks as though there was brush there, but this picture might have been taken on an angle that shows that brush.

Q. Was that pile of rocks there when you were there on the 2d day of January, 1920—the pile of rocks that shows on Exhibit “F,” right under the spout?

A. I couldn’t say that that is right under the spout, Mr. Hellenthal—that might be off to one side, from looking at this picture.

Q. Was that pile of rocks there, whether it was to one side or under the spout, regardless of where it was, was that there?

A. From where I was I don’t suppose I could see that.

Q. You were not at a place where you could see that pile of rocks then, is that true?

A. If this pile of rocks, Mr. Hellenthal, was at the mouth of that flume or this trommel evidently I would have seen them because I could see the mouth of the chute here.

Q. That picture shows pretty well where that pile of rocks is, doesn’t it? [325]

A. Sure, the picture shows the pile of rocks, I presume, or whatever it may be.

Q. That shows pretty well where that pile of rocks was with reference to where you were, don’t it? A. No, Mr. Hellenthal.

(Testimony of Frank Harris.)

Q. Where were you?

A. I was right up over the trommel, on the board walk.

Q. You didn't go down?

A. I looked down, certainly.

Q. But you didn't go down?

A. No, there was no need of going down, Mr. Hellenthal.

Q. There is no need of going anywhere.

A. I couldn't see this pile of rocks. There was no need for these rocks to be right underneath the mouth of the trommel.

Q. You could see those rocks if they were there?

A. Certainly I could if they were right where the mouth of the trommel dumps down on the ground.

Q. Were those rocks there on the 2d day of January when you were there?

A. No, they weren't there.

Q. Where was that hole that you were talking about with reference to that pile of rocks?

A. Right where a volume of water might throw out and hit the ground—perhaps 7 or 8 feet from the mouth of the trommel.

Q. Where would that hole be with reference to that pile of rocks?

A. I couldn't tell from this picture, Mr. Hellenthal—if this picture was taken up and down hill I could tell you more about it.

Q. Calling your attention again to Exhibit "E"

(Testimony of Frank Harris.)

and Exhibit "G," that shows the same spout, doesn't it?

A. Well, Mr. Hellenthal, this spout here looks similar to that but it is in a different shape—it is turned at a different angle here.

Q. Yes, the picture is taken from a different place? [326]

A. Yes, a blind man could see that.

Q. But it is the same spout, isn't it?

A. I couldn't say as to that—might be a different piece of iron than it is here—I couldn't swear to that, you know.

Q. It looks pretty much the same, doesn't it?

A. Sheet iron, I presume, from the picture.

Q. Will you indicate to me on any one of those pictures where that hole in the ground was?

A. No, I cannot, Mr. Hellenthal.

Q. No?

A. Because they are not taken at the right angle.

Q. Do you think you could go up on that hill with the jury and show the jury where that hole in the ground was?

A. If the evidence had not been destroyed I certainly could.

Q. Do you mean to tell me that that hillside is any different than it was at the time you were there?

A. I haven't been up there since the penstock was taken away, but I would like to take a walk up.

Q. The hillside is there for you. A. All right.

(Testimony of Frank Harris.)

Q. I want you to tell me what other evidences you saw at the penstock at that time—was it just a hole or a ditch?

A. It was a ditch, 18 or 20 inches wide, and perhaps 6 or 8 inches deep, to the best of my knowledge and belief.

Q. And that was running right from the spout of the penstock down hill, is that right?

A. Right where the water might come out of the penstock and hit on the earth. It has a drop of I should say not over 7 feet, and this trommel laid on about a 45, I should judge.

Q. And right there where it struck was a hole, how deep, now?

A. There was a place cut right down the hill.

Q. There was a hole where it first hit, wasn't there? A. Certainly.

Q. How deep? [327]

A. I couldn't exactly judge that. Of course the hole wasn't exactly square or it wasn't exactly round.

Q. No, but how deep into the ground?

A. I couldn't say as to that at the time—I couldn't tell, Mr. Hellenthal, to tell the truth.

Q. Can't you tell me approximately—you can tell within a foot, can't you?

A. I don't think it was cut down over a foot.

Q. Not over a foot?

A. No; I would say somewhere about a foot.

Q. And that trench ran right down the hill a foot deep?

(Testimony of Frank Harris.)

A. No, not a foot—you asked me where this water hit.

Q. How deep was it where it ran down the hill?

A. As I explained to you, 18 or 20 inches wide, and 6 to 8 inches deep.

Q. And that trench ran right down that hill how far?

A. There was a grassy place there from the mouth of the trommel—I should say 20 or 30 feet before it hit the brush.

Q. And that trench was 20 or 30 feet long?

A. Yes, sir.

Q. And that was there when you were there on the 2d of January, is that right?

A. Yes, sir.

Q. Will you do me the favor of going up that hill and seeing if that trench is there now?

A. I will go up with you any time, Mr. Hellen-thal.

Q. No, I am not going up there myself. Where would that trench run on this picture, referring to Exhibit "G,"—I want you to show me where that trench would run?

A. Mr. Hellen-thal, now the mouth of this spout here is not in the same direction as it was on the 2d of January.

Q. The mouth of that spout isn't running in the same direction as it was on the 2d of January?

A. No, sir.

Q. That is true, is it? [328]

A. Yes, sir.

(Testimony of Frank Harris.)

Q. And you are just as sure of that as of anything else you have testified to, I suppose?

A. Yes, sir.

Q. Referring to Exhibit "G," in what direction was it on the 2d of January?

A. You have it right here,—here it is.

Q. On Exhibit "F" it is pointing in the same direction it was on the 2d of January, you think?

A. That is right.

Q. Where did the trench run with reference to that spout?

A. If this picture was taken up and down the hill instead of lengthwise of the hill I could tell you exactly, but it is taken the wrong way.

Q. The spout shows on that picture, doesn't it?

A. The spout shows.

Q. The place where the water hit the ground shows there, doesn't it?

A. How can it show in a bunch of brush, the way it is here? The way this picture is taken there is brush, but there is no brush between the penstock and out here a ways.

Q. The trench that you saw on January 2d last ran where the brush is now in the picture, is that right? A. No, not quite.

Q. Where is it, then?

A. It isn't here Mr. Hellenthal—you cannot see it—this picture isn't taken right to show it. If that picture was taken the other way, up and down the hill—

Q. All right. The spout in that picture comes

(Testimony of Frank Harris.)

right towards you, don't it? A. Certainly.

Q. That water would hit the ground on Exhibit "G" in the fore part of the picture, wouldn't it?

A. Certainly. [329]

Q. Do you see any trench there?

A. Mr. Hellenthal, I don't know just exactly how far this brush is away from this penstock. This might be 50 or 60 feet away, for all I know.

Q. Yes, but it doesn't look that way to you, does it?

A. I don't know—here it don't—there is quite a distance there—any man can see that.

Q. Might be 200 feet for all you know, might it not?

A. I suppose it was somewhere between the Bergman Hotel and the penstock.

Q. All right—let us look at another picture. Let us look at Exhibit "G," and we will assume now that that spout on Exhibit "G" is the real spout—the real thing—tell me, where is the hole on that picture—where is the trench?

A. You cannot see it here, Mr. Hellenthal.

Q. You cannot see it? A. No.

Q. Let us look at Exhibit "E," where would the trench and the hole be there, assuming now that that is the real spout—the real thing?

A. Was this taken at the penstock?

Q. Well, we will assume that it was.

A. I cannot, no, sir—I cannot see anything about that, Mr. Hellenthal.

Q. That doesn't look to you as though it was

(Testimony of Frank Harris.)

taken there, but we will say that it was taken there—where would the trench be in that picture?

A. Where is the trommel here, Mr. Hellenthal?

Q. You see the spout, don't you?

A. No, I don't—that might be a piece of board for all I know.

Q. This might be a piece of board? A. Yes.

Q. But we will assume now that that thing that looks like a spout is a spout and that this is really the penstock, and [330] that that is the place where you were on January 2d—now where is the hole?

A. Which way is this spout facing, Mr. Hellenthal?

Q. You can see it there?

A. No, I can't—I can see what you call the spout, but I cannot see which way the picture was taken.

Q. It looks right towards you, don't it, pretty nearly? A. No, it don't.

Q. You can see where the water would hit, can't you, coming out of there?

A. No, I cannot see where the water would hit coming out of there.

Q. You cannot tell anything about the hole from the appearance of that picture, is that right?

A. That is right, yes, sir.

Q. That is it doesn't look to you like the same place?

A. Not from where I was looking at it, no.

Q. With reference to Exhibit "F," does that look like the mouth of the trommel?

(Testimony of Frank Harris.)

A. It looks like the mouth of the trommel, exactly.

Q. Where would the hole be on that picture?

A. I just described that to you, Mr. Hellenthal—that this here picture is not taken in the proper way to tell.

Q. But that shows the place where the water would hit the ground, doesn't it?

A. I don't know whether it does or not. As I told you before, there is quite a distance here.

Q. The fellow that took that picture might have overlooked the hole—might have taken that picture very carefully so as not to show that hole?

A. If the man who took this picture had taken it up and down the hill it would be a better explanation than the way it is now—this shows the mouth of the trommel.

Q. And it doesn't show any hole. Look at Exhibit "G" and see if you can see anything there that makes you think you were ever [331] there before.

A. Yes, I see the door of the penstock.

Q. That looks natural, does it?

A. Yes, you bet it does.

Q. That is the only natural thing about that picture?

A. The trommel, of course, comes out, but I should say the thing had been changed—it wasn't in this direction.

Q. That doesn't look right, does it? A. No.

Q. And the place where that spout would throw

(Testimony of Frank Harris.)

the water on the ground doesn't show any hole?

A. You said there was a pile of rocks there.

Q. It shows there, don't it?

A. It might be bricks,—I cannot tell.

Q. That pile of rocks wasn't there when you were there on January 2d? A. No.

Q. That picture shows exactly where the water would come down, doesn't it?

A. On the 2d of January?

Q. No, where it would come down from that spout, whether that is the right one or the wrong one, I don't want to discuss that with you.

A. Why, yes.

Q. And where that picture shows that the water would come down from the spout, that hole doesn't show, does it?

A. No, you have a bunch of rocks there.

Q. And there is no trench leading from that bunch of rocks or from anything else, is there?

A. You cannot see it in this picture.

Q. How far down did you say that trench ran?

A. Oh, 20 or 30 feet.

Q. Come over to this map, Mr. Harris, and let us see where it would go on this map—can you point out on this map where [332] the hole was?

A. That is a pretty large map to point out a small hole, Mr. Hellenthal.

Q. You can get somewhere within a mile or two of it, can't you?

A. You want me to point to where I was standing or to where I was looking at this trench?

(Testimony of Frank Harris.)

Q. I want you to point to where the hole was.

A. I cannot give you the exact place—I can give it to you approximately.

Q. All right.

A. Right about here, somewhere.

Q. Where was the trench you saw?

A. It led down the hill.

Q. Did it lead along the course that is indicated there by that shading, the light shading?

A. This here, you mean?

Q. Yes.

A. Well, no—that shows, Mr. Hellenthal, as the other—that is perhaps connected up to the mouth of the trommel here—that shows the curve here, but what I have reference to there was no curve that I could see.

Q. No curve at all. This drawing, then, is all wrong?

A. I don't know whether it is all wrong or not.

Q. It doesn't follow your trench, is that right?

A. I don't know when that was made, Mr. Hellenthal.

Q. Of course you don't. I am not asking you whether you know when it was made—I am asking you whether this shows the thing correctly or not. Does that show the course of that trench you saw on the ground correctly—was the course of that trench along the same line that that shaded line is?

A. Would you allow me to explain?

Q. Sure.

A. The water coming out of this trommel, or what-

(Testimony of Frank Harris.)

ever might come out, would fall I should say 7 or 8 feet on a 45, which [333] would hit, I don't know just exactly how many feet from the mouth of the trommel out on the level, but any fair-minded man could judge that; and from there it cut a place right down to this place where there was grass—and there wasn't much, in fact—no timber or heavy stuff—it was perhaps grass—and from that you could trace it to where it had come out and took away the earth with it. Now, it didn't run in a zigzag this way.

Q. It ran straight? A. Well, practically so.

Q. For at least 20 feet? A. Yes, 20 feet.

Q. That is as far as you traced it, is it?

A. Yes.

Q. Did it run any farther than that, do you think—farther than 20 feet?

A. I couldn't say to that. I don't suppose anybody drank up the water at the end there, or anybody used it—it must have flowed over the ground.

Q. I am asking you what you saw—how far did you see that water?

A. Twenty or 30 feet, I told you.

Q. And for that entire 20 or 30 feet it was a straight trench 18 to 20 inches wide and 6 to 8 inches deep, isn't that it?

A. Practically straight, yes—practically straight.

Q. And it didn't follow the line that is indicated on this map, and curve like this map shows?

A. Not that I have any recollection of now.

Q. You know what you saw, don't you, Mr. Harris?

(Testimony of Frank Harris.)

A. Well, that map isn't exactly the way I am explaining it.

Mr. HELLENTHAL.—No; that will be all.

(Witness excused.) [334]

Testimony of Mrs. Anna Bach, for Plaintiff.

MRS. ANNA BACH, called as a witness on behalf of the plaintiff, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. RODEN.)

Q. What is your name? A. Mrs. Anna Bach.

Q. Where do you live, Mrs. Bach?

A. Right here, next to Koski's house.

Q. Right next to where Koski's house was?

A. Yes.

Q. How long did you live there before the slide?

A. Since 1915.

Q. On the morning of the slide were you in the house? A. I was home, yes.

Q. What did you do, say an hour or two before the slide? A. I was cooking.

Q. Did you have occasion to look out of your window at any time?

A. Yes, I looked out of my windows.

Q. In the direction of the mountain-side?

A. Yes.

Q. What did you see there?

(Testimony of Mrs. Anna Bach.)

A. After nine I seen water coming down from that bank.

Q. You saw water coming down? A. Yes.

Q. Where was that water coming from?

A. From that bank where the slide broke loose.

Q. You saw the water—where was the water when you saw it? A. You mean where it came from?

Q. No, the first place that you saw it.

A. I saw it right by that bank where the slide broke loose, where that big stump is.

Q. I understand you to say you saw the water right in the place where the ground broke loose?
[325]

A. Yes.

Mr. HELLENTHAL.—That is leading.

Mr. RODEN.—I simply repeated what I felt sure she had said.

Q. Tell us again what you said about where you saw the water. A. Yes, I seen the water.

Q. Where did you see it? A. By that bank?

Q. By which bank?

A. Where the slide broke loose.

Q. Now, that was about what time in the morning? A. After nine.

Q. How much water did you see, about, there, Mrs. Bach?

A. In the beginning it wasn't so very big, but it was growing bigger and bigger all the time until eleven.

Q. Did you see the water several times between say 9 o'clock and the time of the slide?

(Testimony of Mrs. Anna Bach.)

A. Yes, I did.

Q. Did you see anybody out there on this ground above your house? A. On our lot.

Q. Not on your lot but above your house?

A. I saw Mr. Koski up working with the shovel below the tower.

Q. Where was Mr. Koski?

A. He was below the tower—he was working with a shovel to keep away that water what was coming down.

Q. He was working with a shovel?

A. Yes—there was another man on the lot, too.

Q. I wish you would point out your house on this. Will you please show to the Court and jury where your house is located—which one is your house?

A. That is our houses—here is our house—here is our kitchen, and the kitchen opens just on that hill—I could see everything so plain that morning.

Q. Point out where you saw the water.

A. Right here, by that stump there. [336]

Q. That stump is right back of the tower, is it?

A. Yes, right back of the tower—and I saw it there, too, same place; and after eleven there was two branches that came off of that big stream—it was coming down—it was on our lot.

Q. About where did the branch-off start, Mrs. Bach?

A. The branch came off to the tower, and there was one big stream coming down; after eleven it was going, one here, and one here—you can see our

(Testimony of Mrs. Anna Bach.)

chicken-house that is here located—there was another big stream coming down underneath the chicken-house on our lot.

Q. Now, right at the time of the slide, Mrs. Bach, where were you standing in your house?

A. I was standing right at the table by the windows—by my kitchen windows.

Q. Your kitchen was the back part of the house?

A. Yes.

Q. The back, towards the mountain-side?

A. Yes.

Q. How long before the slide was it that you saw Mr. Koski standing there?

A. Our girl, she told me, “There is Mr. Koski working on that water.”

Q. Your little daughter said that?

A. My daughter, yes—she told me and I looked up and I see him working—it was after eleven.

Q. At the time of the slide you were looking out of the window? A. Yes.

Q. What happened?

A. When I looked I looked through the window, and our girl was reading in that window next to me, and I looked and I seen Mr. Koski standing on our lot, a little bit sideways—he was standing like this, with his head to my window, and at the same moment my windows was all dark, covered with water and mud, and then I couldn’t see anything more, because it was [337] dark in our kitchen, and I and the girl were running away.

Q. Did the side of your house break in then?

(Testimony of Mrs. Anna Bach.)

A. Yes, it broke in.

Q. What made it break in?

A. Such big rocks came—about that size.

Q. Anything else?

A. Little stones and big rocks and everything came in, and dirt—our kitchen was covered with stones and rocks and water, and the kitchen stove was broken too; then I went away—I was afraid to stay because I was hit with mud, too, on the head, and then I went in again because I had nothing on and I was all dirty from the mud; and when I came in I seen a body laying on the floor—I couldn't explain what it was because it was covered with stones—big stones and rocks and dirt; after he moved his head I see it was his head, Mr. Koski's head, and he was laying like dead.

Mr. RODEN.—Wait—that is all, Mr. Hellenthal, you may cross-examine.

Cross-examination.

(By Mr. HELLENTHAL.)

Q. What time in the morning did you first see the water? A. It was after nine.

Q. Pretty nearly 10 o'clock, wasn't it?

A. No, no, it was after nine.

Q. Nearer nine than it was ten?

A. It was after nine when I seen the first stream.

Q. How much after nine?

A. I don't remember that, but it was after nine.

Q. Wasn't it after ten?

A. No; it wasn't after ten—it was after nine.

(Testimony of Mrs. Anna Bach.)

Q. How much before ten?

A. I don't know that because I don't remember—I couldn't tell you the right answer, but it was after nine when I seen that. [338]

A. It wasn't before nine when you saw that?

A. No.

Q. It was between 9 and 10 o'clock?

A. Yes.

Q. Sometime between 9 and 10 o'clock?

A. Yes.

Q. You then saw the water for the first time?

A. Yes.

Q. You live right at the side of that hill, and you have a good view, you say, up that hill there?

A. Yes, I have a very good view from my kitchen windows.

Q. And the first water you saw running over the ground there was between 9 and 10 o'clock in the morning, Mrs. Bach? A. Yes.

Q. Now, at eleven o'clock you saw more water there, didn't you? A. Yes, it was a big stream.

Q. There wasn't so much water between 9 and 10 as there was at 11 o'clock.

A. No, there wasn't so much.

Q. There was quite a lot of water when you first saw it, wasn't there?

A. It was about this size when I first seen it, but after eleven it was awful big—it was all over the whole hill.

Q. At first there wasn't so much water, and then it got bigger? A. It got bigger all the time.

(Testimony of Mrs. Anna Bach.)

Q. And about 11 o'clock it got to be a big stream?

A. Yes.

Q. There was water running everywhere just before 11 o'clock—before the slide?

A. There was two branches which broke into our lot.

Q. Before that it didn't run into your lot?

A. No.

Q. It didn't run into your lot until about 11 o'clock? A. Yes. [339]

Q. And it branched off so that you could see two branches running in your lot? A. Yes.

Q. The reason you know there were two branches is because one was on your lot and the other one was on Koski's lot?

A. Those two branches that I seen was one on our lot—one was underneath the chicken-house and one was before the chicken-house.

Q. There were two streams on your lot?

A. Yes.

Q. There was a stream on Koski's lot, too, wasn't there? A. Yes.

Q. There were a lot of little streams all over that hill?

A. There was water all over because it came from where that flume came from.

Q. You think it came from that flume?

A. I am sure it didn't come from higher up because I looked up and I saw water come from where that flume was.

(Testimony of Mrs. Anna Bach.)

Q. You could see the flume from where your house was?

A. I couldn't see the flume, but I saw men working on the flume.

Q. You could imagine where it was coming from? A. Yes.

Q. You couldn't see it?

A. I could see men working from my chicken-house after the houses was down—it wasn't before—it was after.

Q. Now, Mrs. Bach, isn't it a fact that when the slide happened there were two slides—a piece broke off first right by Koski's house, and then there was some more broke off after?

A. The second slide, when that broke off I was standing on the outside by the chicken-house.

Q. There was a piece broke off at Koski's house first, and then right after came the whole business; isn't that right?

A. I didn't stand there and watch the whole business—if I stand and watch that slide I would have been killed, because [340] it came so quick.

Q. Isn't that the way it happened?

A. I don't know because I didn't see that when the house went down.

Q. No, you didn't see it when the houses went down, but before the houses went down, the first thing, there was a bank that broke off right behind Koski's house—what I mean, a little ways up—first that went down, and then the other came right after it—isn't that the way it happened?

(Testimony of Mrs. Anna Bach.)

A. I didn't see that—my clothes were covered with dirt and mud.

Q. Do you know Mr. Tom McDonald, a big fellow? A. Yes, I know him.

Q. He talked to you about this once, didn't he?

A. He asked me if the water came down.

Q. Didn't you tell Tom McDonald this—he was at your house, wasn't he?

A. No, he was on the outside—he talked with my husband—he wasn't in the house.

Q. There were a lot of large rocks running against the house that Koski was taking care of too, wasn't there?

A. We had lots of rocks, too, on our lot.

Q. I mean before the slide Koski had to take care of a lot of rocks behind the house?

A. Behind our house?

Q. No, behind Koski's house.

A. There was no rocks before the slide on our lot.

Q. Not on your lot, but on Koski's lot, I mean.

A. I don't know that, if he have rocks there.

Q. Didn't you see the rocks coming down that bank right behind the Koski house just before the slide?

A. No, I didn't see that—it was dark in my kitchen.

Q. Didn't you, at the time you were talking to Mr. McDonald, tell him in substance as follows: That two slides occurred—

(Testimony of Mrs. Anna Bach.)

A. No, no; I didn't say that, because I didn't see it. [341]

Q. Wait—let me give you the whole question, then you will probably remember it. Didn't you tell Mr. McDonald about what I am saying now—not word for word—I don't mean that, but I mean in substance—that two slides occurred; the first was the high bank close to Koski's house; the second slide followed immediately afterwards and extended up the hillside to the present top or apex—did you tell him something like that?

A. No, no, I couldn't tell him that because I didn't see that.

Q. You never said that to Mr. McDonald?

A. No; he only asked me when the water came down, before the slide or after, and I told him after—he start at what I told him and he didn't ask me any more.

Q. You didn't tell him what I have read to you, or anything like that? A. No.

Q. Nothing about two slides at all?

A. He was talking to Mr. Morgan—I don't know what he told him, but he didn't talk to me.

Q. You didn't say anything about two slides?

A. How can I tell him if I don't see it—I didn't see two slides—I see just one little piece come down.

Mr. HELLENTHAL.—That is all.

Redirect Examination.

(By Mr. RODEN.)

Q. You say that you saw some men at work up

(Testimony of Mrs. Anna Bach.)

there on the flume? A. That was after; yes,

Q. About how long after?

A. Twenty-five minutes, then the water stopped. I think they shut it off because I see those men—they were hammering on that flume.

Q. They were hammering up there? A. Yes.

Mr. RODEN.—That is all.

(Witness excused.) [342]

Testimony of C. J. Skuse, for Plaintiff.

C. J. SKUSE, called as a witness on behalf of the plaintiff, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. RODEN.)

Q. What is your name, Mr. Skuse?

A. C. J. Skuse.

Q. What is your business?

A. Well, I haven't got any now. I used to be a farmer.

Q. How long have you been around the town of Juneau, Mr. Skuse? A. Off and on, 25 years.

Q. Were you in the town of Juneau on the 2d day of January, 1920? A. Yes, sir.

Q. That is the day on which the slide occurred?

A. Yes, sir.

Q. Where were you at the time of the slide?

A. I was in George Burford's store.

Q. Whereabouts were you in George Burford's store?

(Testimony of C. J. Skuse.)

A. Right inside of the door, about the center of the showcase—the front showcase.

Q. Did you have occasion to look through the window at any time?

A. Yes; I was looking out the window—looking out the window up the hill some few minutes before the slide happened.

Q. In what direction were you looking?

A. I guess it is southeast, isn't it, from Burford's store, up the side hill there?

Q. What object were you looking towards—what thing were you looking at?

A. I was looking at a stream of water running down the ridge there.

Q. Where was that stream of water running, Mr. Skuse? A. Right about the center of the ridge.

Q. The center of what ridge?

A. The ridge that broke away. [343]

Q. Now, how long before the slide did you say it was that you saw that?

A. Oh, a few minutes—four or five minutes—I couldn't tell exactly.

Q. Then what did you do?

A. Well, then the slide took place I went out and went out towards—down the street.

Q. Did you see any water running down there then?

A. After I got down there, yes; there was some water running, but not in the same place.

Q. Now, then, state again where this water that you saw through the window was running—where

(Testimony of C. J. Skuse.)

was that water running with reference to the ground that broke loose afterwards, about?

A. Right straight in the center of it, about.

Mr. RODEN.—You may cross-examine.

Cross-examination.

(By Mr. HELLENTHAL.)

Q. That was after you got down to the slide, Mr. Skuse? A. Yes.

Q. You couldn't see that from Burford's?

A. Yes, I seen it from Burford's.

Q. You saw the water farther up from Burford's, but you saw it running over the middle of the slide after you got to the slide?

A. Yes, it was running in the same place where I seen it first—yes, the same place.

Q. The water you saw from Burford's you saw pretty far up the hill, running along the middle of the hog-back—is that right?

A. I couldn't see very far up the hill—only a little ways above where the ground broke—from where I stood.

Q. It was a little ways above where the ground broke that you saw the water? A. Yes.

Q. Maybe 25 feet above that?

A. I couldn't tell how far. [344]

Q. It was a little ways, anyhow, 15 or 20 or 25 feet?

A. Maybe that right up—there is brush growing and you couldn't see where the water came from.

Q. And when you got down to the slide a little

(Testimony of C. J. Skuse.)

while afterwards—that was just before the slide, wasn't it? A. Yes.

Q. And when you got down to the slide some little bit afterwards you saw the water coming down over the slide?

A. Yes; it didn't last very long, but it was in the same place where I seen it up to Burford's.

Q. It lasted how many minutes would you think?

A. I couldn't tell—15 or 20 minutes—15 minutes.

Q. There was quite a stream, wasn't there, Mr. Skuse?

A. It was quite a stream when I first saw it.

Q. It was a stream of clear bright water that you could easily see?

A. I don't know about it being very bright—I couldn't tell from that distance.

Q. You could see it well, I mean?

A. Oh, yes; yes, I could see it well.

Q. It wasn't something you had to look through a spy-glass to see—you could see it with your naked eye at Burford's?

A. No—I could see it plain.

Q. It was plainly to be seen? A. Yes.

Q. And it was wide enough and clear enough and bright enough so you could see it? A. Yes, sir.

Q. How old are you, Mr. Skuse? A. I am 63.

Q. Your sight is good for your age, isn't it?

A. It is good—it is good yet.

Q. It is good for your age? A. Yes.

Q. And you could clearly see that stream from Burford's corner? [345]

(Testimony of C. J. Skuse.)

A. Yes, sir; I could see it,—I could see it from here.

Q. It was so plain you could clearly see it from the courthouse? A. Yes, sir.

Q. The stream over the middle of the slide, Mr. Skuse, that was a big stream, too, wasn't it, that ran over the top of the slide?

A. After the slide happened?

Q. Yes.

A. It didn't seem to me to be as large as it was when the slide happened.

Q. It didn't seem to be as large? A. No.

Q. But it was a big stream, however?

A. It took me some time to go down there, you know—I was crippled at the time.

Q. And you didn't get down there as quickly as—

A. I didn't get down there as quick as I could now.

Q. And after you got there at last, there was a stream coming over the top of the slide? A. Yes.

Q. And that was a pretty good-sized stream, too, wasn't it?

A. It wasn't a very big stream, but at that time I noticed when I got down there the water was muddy that was coming over the slide.

Q. That is the water in the slide? A. Yes.

Q. But the water on top wasn't muddy before it struck the mud, was it? A. I didn't notice that.

Q. What do you mean by running over the slide—you mean where the stuff had slid down, Mr. Skuse

(Testimony of C. A. Gabie.)

—over the muck? A. Yes, over the muck.

Mr. HELLENTHAL.—That is all.

(Witness excused.) [346]

Testimony of C. A. Gabie, for Plaintiff.

C. A. GABIE, called as a witness on behalf of the plaintiff, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. RODEN.)

Q. Mr. Gabie, you may state your name.

A. C. A. Gabie.

Q. Where do you reside? A. Juneau.

Q. How long have you been residing in the town of Juneau?

A. Somewheres around 6 or 7 years this last time.

Q. Were you in the town of Juneau the 2d day of January, 1920? A. I was.

Q. Do you remember the occasion of the slide?

A. Yes, sir.

Q. Where were you at that time?

A. I was in Dave Housel's place, in the Brunswick.

Q. How was your attention attracted to the slide?

A. By a noise.

Q. Did you know what caused the noise?

A. Well, there was an awful noise—sounded like 40 wagons running up and down the street on loose planking.

Q. What did you do then?

(Testimony of C. A. Gabie.)

A. I got out of the front door.

Q. What did you do then?

A. Went out of the front door, and I see some flashes up on the hill.

Q. Then what did you do?

A. I run down the street.

Q. Where to?

A. Right this side of the soda works.

Q. What did you see there?

A. I see the street cave in a few minutes after I got there, see [347] the dirt up on the hill break loose, come down and hit the buildings, and the street come in.

Q. When you speak about the street you mean Gastineau Avenue up there? A. Yes, sir.

Q. It is a bridge? A. Trestle work there.

Q. Trestle work, yes. Did you see any water anywhere? A. Yes, sir.

Q. Where did you see any water?

A. There was water all over up there.

Q. How high up on the mountain-side did you see any water, with reference to the ground that had broken loose?

A. Right where it come over the top of the hog-back, is the first water I noticed.

Q. And did this water continue down through the slide mass? A. Yes, sir.

Q. Were you there before the fire department reached there, Mr. Gabie?

A. Why, I was there quite a few minutes before the alarm was turned in.

(Testimony of C. A. Gabie.)

Q. Do you know who turned in the alarm?

A. I do not.

Q. Did you see it turned in?

A. No, I didn't. I went into Mr. Goldstein's store at that time and went through the back door.

Q. What did you see in Goldstein's store at that time?

A. When I went into Goldstein's store there was another man came there, and the both of us went through the back end, and the water hit us when we went through the back door—we had to force the back door, and the water hit us.

Q. Then you went up on the slide area?

A. We went upon the slide—we see a man or woman—I didn't know whether it was a man or woman, who was in their underclothes, [348] and we couldn't get across the muck—it was about 2 feet deep up there, so I came down through Goldstein's store and went around by the Windsor apartments and came around that way.

Mr. RODEN.—You may cross-examine.

Cross-examination.

(By Mr. HELLENTHAL.)

Q. Your name is Gabie? A. Yes, sir.

Mr. HELLENTHAL.—That is all.

(Witness excused.)

Testimony of P. R. Bradley, for Plaintiff.

P. R. BRADLEY, called as a witness on behalf of the plaintiff, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. RODEN.)

Q. I just want to ask you a question or two. You are familiar with the pipe-line that leads from the penstock down to the mill?

A. In a general way; yes.

Q. Can you tell us whether or not there is a valve in that pipe-line anywhere? A. There is.

Q. Whereabouts is that located?

A. You are speaking now of the time, January 2d, 1920?

Q. Yes, sir.

A. There was a large valve at the mill where the pipe-line of the fresh-water system joins the pipe-line of the salt-water system. Now, I am not so familiar with the valve connections between the 30-inch pipe-line and the 8-inch wood stave pipe-line of the city's high-pressure system—I do not think there [349] was any valve at that point in our main line, although there may have been.

Q. But you do know that you had at least one valve in your main line?

A. We had one valve in our main line which was chained and padlocked.

Q. And what is the distance, about, Mr. Bradley,

(Testimony of P. R. Bradley.)

from the penstock to where this valve was located on the pipe-line, on the 2d day of January, 1920—oh, approximately? A. About 2,732 feet.

Mr. RODEN.—That is all.

Cross-examination.

(By Mr. HELLENTHAL.)

Q. That valve, Mr. Bradley, was that ever shut except on occasions when you had to make repairs, or something of that kind?

A. The valve was put in at that point in order to be able to shut the salt-water system away from the pipe-line on this side, and in order to be able to repair this pipe-line without shutting down our entire mill, and it never was disturbed—there was no reason why it should have been disturbed unless there was a breakdown this side of the mill; and in order that there should be no disturbance we took every precaution we could think of to keep it from being disturbed, and we put a chain and a padlock on it, and the key to the padlock was in the possession of the mill foreman—the key was given to him and kept in his care.

Q. The valve was locked with a chain and padlock so no one could close it, and the key was placed in the possession of Mr. Clauson, the mill superintendent; is that right? A. That is right.

Mr. HELLENTHAL.—That is all.

Q. (By Mr. RODEN.) But the fact remains nevertheless that that valve was used to shut off the water in this main pipe-line?

(Testimony of H. B. Lefevre.)

A. In case such a condition were necessary.

Mr. RODEN.—That is all.

(Witness excused.) [350]

Testimony of H. B. Le Fevre, for Plaintiff.

H. B. LE FEVRE, called as a witness on behalf of the plaintiff, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. RODEN.)

Q. Please state your name. A. H. B. Le Fevre.

Q. What official position do you occupy?

A. United States Commissioner.

Q. For the Juneau Precinct?

A. Juneau precinct.

Q. Were you in the city of Juneau on the 2d day of January, 1920? A. Yes.

Q. That is the time at which the slide occurred?

A. Yes.

Q. Where were you at the time of the slide?

A. I was in my office.

Q. Where was your office located?

A. Right opposite the slide—directly opposite.

Q. What, if anything, attracted your attention to the slide?

A. Well, I heard a roaring noise, and I was sitting close to the window and looked out.

Q. And when you looked out what did you see?

A. Well, I saw a house coming down, striking

(Testimony of H. B. Le Fevre.)

the roadway—the trestle roadway and tearing it out, and I saw the whole hill coming gradually down towards the street, and it stopped at the houses—I saw all that occurred there.

Q. Did you see any water anywhere? A. Yes.

Q. Where?

A. Well, right opposite where the slide came from there is—it slopes down on one side to a canyon that, I assume, has been partially filled up, but at any rate I could see no [351] water on that side; but on the other side, on the north side of a divide between a large canyon and a little gully, I could see water coming down the little gully.

Q. Where was this little gully with reference to the slide area?

A. Why, the gully I should imagine would be in about the center of the whole slide area, and it would be to one side of where the slide started.

Q. Who was in your office at that time, Judge?

A. A little girl that was working for me—a little Indian girl, Marie Orsen, and John B. Marshall, an attorney.

Q. That is John B. Marshall, the attorney?

A. Yes.

Mr. RODEN.—You may cross-examine.

Cross-examination.

(By Mr. HELLENTHAL.)

Q. The water you saw, Judge, was in the gulch right on one side of the place where the slide broke loose—that is right, isn't it?

(Testimony of H. B. Le Fevre.)

A. That, Mr. Hellenthal, is where it came from; then it swerved into the slide and boiled up.

Q. The gulch ran right in to the slide a little below where the slide came from—that is right, isn't it?

A. Yes; this water was at the northern side of the divide between a canyon where, of course, there must have been water but you couldn't see it—it was too far away—and of the gully that came down and probably would strike the center of the slide area, but it was to one side of where the point of this divide had broken off—that is what seemed to have started the slide, was the breaking off of that,—it was to one side of that.

Q. You didn't see any water coming over where the slide broke loose?

A. Not over the apex of that divide; no. [352]

Q. You saw no water running there?

A. None.

Q. But where you saw the water was on the gulch side of that, in a little gully that ran down there?

A. Exactly.

Q. And that would be the side towards the town?

A. That *would be* the side towards the town.

Q. At the point where that gully would strike the slide? A. Yes.

Mr. HELLENTHAL.—That is all.

Q. (By Mr. RODEN.) Did you see any water boiling around in there anywhere?

A. The water seemed to come down that gully and swerve, and of course as it came down the water

(Testimony of H. B. Le Fevre.)

would back up,—you know, it would go by jerks, the water would; as the earth was pushed down, and would form a little crest, the water would run behind it, then it would burst and boil, and then come down, but of course that water—that slide would come down and that filling up with water, you know, was of very short duration because the whole thing seemed to come right down—didn't seem to come very fast, but to come right down, all of it.

Mr. RODEN.—That is all.

(Witness excused.)

(Whereupon court adjourned until 10 o'clock to-morrow morning.) [353]

MORNING SESSION.

March 26, 1921, 10 A. M.

Testimony of Georgia Higgins, for Plaintiff.

GEORGIA HIGGINS, called as a witness on behalf of the plaintiff, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. RODEN.)

Q. What is your name? A. Georgia Higgins.

Q. How old are you, Georgia? A. Fourteen.

Q. Where do you live?

A. I live down on 12th Street, right opposite the radio station.

Q. How long have you lived in Juneau?

(Testimony of Georgia Higgins.)

A. Three years.

Q. Do you remember the time when the slide occurred on the hillside? A. Yes, sir.

Q. Do you remember about how long ago that is?

A. Well, I should judge about a year.

Q. Where were you at the time of the slide?

A. Just this side of the schoolhouse.

Q. That is the schoolhouse in the town of Juneau?

A. Yes, sir; Juneau public.

Q. Did you see the slide? A. Yes, sir.

Q. I wish you would tell the Judge and the jury here what you saw.

A. I was standing talking to a girl friend of mine, and we were having a discussion about something around the Koski house, and she said, "Oh, look at the water," and just as I turned around I seen the water and then a lot of dirt, and then the house coming down.

Mr. RODEN.—You may cross-examine.

Mr. HELLENTHAL.—No questions.

(Witness excused.) [354]

Testimony of L. S. Robe, for Plaintiff.

L. S. ROBE, called as a witness on behalf of the plaintiff, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. RODEN.)

Q. Will you state your name? A. L. S. Robe.

Q. What is your business or profession?

(Testimony of L. S. Robe.)

A. Mining engineer.

Q. How long have you followed the profession of mining engineer, Mr. Robe?

A. About 23 years.

Q. I wish you would state to the Court and jury your qualifications—that is, your training, studies, etc.

A. I have had general engineering practice since 1886; the eleven years succeeding 1886 railroad work.

Q. What was the nature of the railroad work you performed? A. Construction.

Q. Construction of what?

A. Construction of railroad lines.

Q. In the course of your operations of that nature did you have occasion to study and come in contact with problems concerning hydraulics— water questions and water propositions to be handled?

A. Not hydraulics as technically applied, but I have had considerable experience in diversion— river and creek diversion, in connection with railroad construction.

Q. After you followed this line of railroad construction what was your line of employment?

A. I came north in '98, and was employed by the Treadgold people, in running the first lines for the Treadgold Alaska system in Klondyke for their large hydraulic works.

Q. That is in the Yukon territory, Mr. Robe?

A. In the Yukon territory, yes, sir. [355]

Q. What position did you occupy for a number

(Testimony of L. S. Robe.)

of years in the Yukon territory?

A. From 1900 to 1906 I was engineer and superintendent of mines of the North American Transportation and Trading Company.

Q. What was the extent of their mining operations over which you were superintendent?

A. They had about 80 properties, 12 or 14 of which were actively worked.

Q. How were those properties being operated?

A. Either hydraulically,—well, you might say they were all placer.

Q. How were these placer claims operated—by what method? A. Hydraulic, mostly.

Q. During that period of time did you have any experience in handling water, construction of ditches and flumes, installation of pipe-lines, and things like that? A. Yes, sir, considerable.

Q. I wish you would state briefly what your experience was along that line.

A. We built something like 50 miles aggregate of ditch and pipe-line, and probably surveyed out a matter of a hundred miles or so of proposed pipe and ditch line.

Q. And these pipe and ditch lines that you have spoken about were installed under your personal supervision? A. They were.

Q. In the course of your experience, Mr. Robe, have you had occasion to study the action of water on certain kinds of materials and different kinds of materials? A. Yes, sir.

(Testimony of L. S. Robe.)

Q. Has it also come within the purview of your profession to study geology?

A. To a certain extent, yes.

Q. State briefly what studies you have gone through on the subject of geology.

A. I have LaCont, Chamberlain and Salisbury. The latter, I [356] think, is the latest work on that subject. I do not claim to be a geologist, however.

Q. You do not pose here as a geologist?

A. No.

Q. You have a certain amount of knowledge concerning geology and geological subjects?

A. Yes, sir.

Q. Have you also had experience in geological matters,—I mean have you had occasional opportunity to study such matters?

A. Yes, there is a certain amount of geology required in reporting on properties in mining.

Q. You say you were in Dawson in 1906?

A. Yes, sir.

Q. Then you went to Fairbanks?

A. I was in business myself for a number of years in Fairbanks and Iditarod, running mines, reporting on properties, doing considerable survey work.

Q. Did you do any ditch construction in the Fairbanks or Hot Springs district? A. I did.

Q. To what extent?

A. I laid out one ditch system about 30 miles. That was never constructed, however, or has not been up to the present.

(Testimony of L. S. Robe.)

Q. Did you ever have anything to do with laying out a ditch?

A. I laid out a ditch on Ester Creek about 5 and a half miles in length; and numerous other ditch lines.

Q. What was the nature of the country through which these ditch lines were built?

A. Composite soil generally.

Q. Where with reference to the topography were the ditches run—were they on level ground?

A. Generally on sidehills—sloping ground.

Q. Are you acquainted with the area, Mr. Robe, which is covered by the slide which occurred here in Juneau on the 2d day of January 1920? [357]

A. I have been on the ground; yes, sir.

Q. Have you examined the ground there?

A. I have.

Q. I wish you would state to the Court and jury what you found.

A. I found a slide that had occurred probably a number of months ago, just how long I do not know. The toe of the slide was quite flat and puddled—evidently a large admixture of water with the material in that slide.

Q. What is the composition of the material which you found in the neighborhood of the slide and in the slide area?

A. Largely loam and loose rock, with probably 20 per cent of clay material overlying the bedrock.

Q. What is the character of this ground or ma-

(Testimony of L. S. Robe.)

terial with reference to the absorption of water?

A. Fairly porous.

Q. Is it such material as will retain water?

A. It would, yes; there is sufficient clay, in my judgment, to retain considerable water.

Q. What is the bedrock formation in that neighborhood? A. Schist.

Q. Have you had any experience with penstocks, Mr. Robe? A. I have.

Q. I wish you would state, in a general way, the purposes and objects of a penstock?

Mr. HELLENTHAL.—I think, your Honor, that is immaterial, what the purpose and object of a penstock in general use is, because the conditions here are so very different from what they are in most places.

The COURT.—I suppose it is preliminary.

Mr. HELLENTHAL.—I guess probably it is, all right.

The COURT.—Proceed.

Q. You may go ahead, Mr. Robe.

A. A penstock is an impound or settling tank to place the water at rest preparatory to its introduction into the service or duty pipe. [358]

Q. What is the primary object, if you wish to call it so, of a penstock with reference to the collection of water? A. The final object?

Q. The primary object.

A. The primary object is a settling tank to eliminate any sticks, brush, stones or sand from getting

(Testimony of L. S. Robe.)

into the service pipe; also to prevent the introduction of air into such pipe.

Q. Are penstocks generally provided with an arrangement or an appliance to carry off any water that might not be taken up by the service pipe leading from it?

A. Good engineering requires waste ways of sufficient size to carry all possible flow irrespective of duty or service pipe.

Q. You have practically heard all the testimony in this case, Mr. Robe? A. I have.

Q. And you have heard the evidence to the effect that water flowed from this penstock that was located on the sidehill through a spout that has been described, this water discharging upon the ground and running down the hill? A. Yes, sir.

Q. I wish you would state whether or not there was any ready, expedient and practical way of preventing this water escaping from this penstock through the spout from doing any possible damage to the territory over which it flowed?

A. The natural drainage there would permit of a short flume or pipe, or both, that would adequately carry all drainage from such reservoir or penstock to a point of safety.

Q. Would it be very much of an engineering feat to install such a pipe or flume?

A. It would not.

Q. Most any kind of a box would have done for that, wouldn't it? A. A box or a pipe.

(Testimony of L. S. Robe.)

Q. Now, from the examination which you have made of the slide area, Mr. Robe, and from what you have heard might the slide [359] be caused by water?

Mr. HELLENTHAL.—Might be caused by water?

Mr. RODEN.—Was it caused by water?

A. There is no doubt in my mind but what water under pressure caused that slide.

Q. Now, if ground located as this ground was on the sidehill, and ground of the character that you have described, if that became saturated with water from any cause whatsoever—we will say from snow water or rain water—what takes place in this ground, if anything, in the mass?

A. The first water generally acts as a puddle and impacts the ground up to a certain point, after which time the water comes in excess and produces a thinning out of the soil or other material, and after there is sufficient pressure something has got to give way.

Q. Now, if a sufficient quantity of water were added to this soil to a point where the soil becomes saturated, or supersaturated, it would naturally cause the soil to move, would it not?

A. Absolutely.

Q. In other words, to use a technical expression, the material would attempt to find a lower level of repose? A. Yes, sir.

Q. Or flatter angle, as we have called it?

A. Yes, sir.

Mr. RODEN.—That is all.

(Testimony of L. S. Robe.)

Cross-examination.

(By Mr. HELLENTHAL.)

Q. Mr.—did you say your name was Rogue?

A. Robe.

Q. Mr. Robe, you examined this material in the slide mass, I believe you said?

A. I have, yes, sir.

Q. And you found that to be about a third clay?
[360]

A. I should think, roughly about 20 per cent.

Q. Then you found probably about half of it would be rock, would it not?

A. No, I hardly think it.

Q. What per cent of it would be rock, large and small?

A. I would say around 20 per cent clay, and possibly 50 per cent soil and other material, and the balance rock.

Q. Now, that examination you made was the result of an analysis you made on the ground?

A. By analysis you mean a careful weighing by the cubic yard, etc.?

Q. Yes. A. No.

Q. You made no such analysis? A. No.

Q. You simply examined it with the naked eye as well as you could without any instruments or tests that might be applied?

A. Exactly; one's general experience generally gives a better result that way than a chemical analysis of the cubic yard.

(Testimony of L. S. Robe.)

Q. If you take a mass and squeeze it in your hand like this it would form a bulb like putty, would it not? A. It would in some places, yes.

Q. And that is because of the clay content?

A. Soil will do the same, Mr. Hellenthal, if there is an admixture of water.

Q. Not quite to the extent that clay will?

A. Not with quite the tenacity; no, sir.

Q. Clay is the stuff that makes it stick?

A. Yes.

Q. If it were sand it would fall apart, wouldn't it? A. Yes.

Q. That is true, isn't it? A. Yes.

Q. Now, did you look at the place the slide came from—the upper end of it? [361]

A. I was from the upper end over the slide only—no other portion of the slide.

Q. You saw that spring there, did you, Mr. Robe?

A. I did not, Mr. Hellenthal.

Q. You did not look for that—your examination was confined to the character of the soil?

A. The character of the soil and the water.

Q. You didn't find any spring at all?

A. I did not.

Q. Did you look for one?

A. I would have noticed it if I had seen one, I think.

Q. Would you have noticed it if there had been one there? A. I think so.

Q. You think your examination of the soil con-

(Testimony of L. S. Robe.)

ditions was not any more careful than your examination of the water conditions, Mr. Robe.

A. No, I think the examination was fair and thorough.

Q. Were you up at the upper end of the slide?

A. At the extreme upper end of the slide.

Q. And you saw no water coming from the ground there—from a spring?

A. No water, only moisture there for a space $3\frac{1}{2}$ or 4 feet wide.

Q. There was moisture coming from the bed-rock? A. I saw moisture but no running water.

Q. No running water at the time you were there. All right. Now, the rock material in the mass consisted of such broken rock as would come from the side of the mountain—is that true?

A. Exactly.

Q. Some small pieces, some quite large.

A. Yes, sir.

Q. And angular in character? A. Yes.

Q. You have been building a great many ditches, I believe you said, Mr. Robe? [362]

A. We built a good many, yes, sir.

Q. You built a ditch how long, in Dawson, did you say? A. One about twenty-odd miles.

Q. That is a pretty long ditch, isn't it?

A. A long ditch system, yes, sir.

Q. That was along the mountain-side?

A. Along the mountain-side, and some of it quite steep.

(Testimony of L. S. Robe.)

Q. And the ditch was built in the ground, was it, Mr. Robe?

A. It was built in the ground and loose rock.

Q. The ground there on the mountain-side is similar to the ground here, is it not?

A. In many respects, yes.

Q. It has about the same clay content and the same rock content and the same soil content?

A. With 20 miles of ditch you would get a varied character of ground,—some of it was very close.

Q. It wouldn't all be just the same?

A. No, not all the same.

Q. But the same general character?

A. The same general character.

Q. Of course the soil in Dawson would not be exactly the character of the soil here, depending somewhat upon the character of the bedrock, wouldn't it? A. Exactly.

Q. But the general character of the soil lying upon the slope in Dawson would be about the same as it is here? A. Pretty much.

Q. What was the quantity of water carried in this ditch? A. Five hundred miner's inches.

Q. That would be about how many cubic-feet per second?

A. That would be about 12 second-feet—in the neighborhood of that.

Q. You used no flume in constructing this ditch—it was all built in the soil?

A. We had considerable flume. [363]

(Testimony of L. S. Robe.)

Q. Where the mountain was very steep, I presume?

A. No, not that, but crossing ravines and alongside of water courses.

Q. It was where you had to cross gulches?

A. Yes, where we had to cross.

Q. You have had some experience, then, in the construction of flumes? A. Yes, considerable.

Q. Wherever the ditch came to where you had to cross a gulch of course the ditch had to be put in a flume to get across on the other side?

A. Exactly, and the approaches as well.

Q. You built ditches in Fairbanks, I believe you said, Mr. Robe? A. Yes, sir.

Q. About how long were these?

A. The ditch on Ester Creek was about $5\frac{1}{2}$ miles long.

Q. Was that also built in the ground, or did you use a flume, or both?

A. There was a flume across Ester Creek, and from there probably 1200 or 1400 feet—otherwise in the ground.

Q. And the balance was in the ground?

A. Yes, sir.

Q. And that was about the same character of hillside that we have here and you had in Dawson?

A. A little more clay, I think, Mr. Hellenthal.

Q. There was a little more clay than there would be in Juneau or Dawson? A. Yes, sir.

Q. And aside from that it would be about the same general character, you think?

(Testimony of L. S. Robe.)

A. Yes, sir.

Q. And that ditch also was built along the hillside?

A. Along the hillside, but flatter ground, however.

Q. That was a little flatter than the Dawson ditch? A. Yes. [364]

Q. What was the capacity of that ditch?

A. I don't recall now,—in the neighborhood of probably 200 miner'ss inches, or 4 sluice-heads—that would be somewhere around 5 second-feet.

Q. That was a somewhat smaller ditch?

A. Yes.

Q. In the neighborhood of what second-feet would that be?

A. In the neighborhood of 5 second-feet, I think.

Q. Then you built some ditches in Fairbanks?

A. I laid out a number of small ditch lines, and also a 30-mile system for Frank Manley.

Q. That was quite a large ditch, was it, Mr. Robe?

A. That was about 500-inch capacity—it wasn't built.

Q. It wasn't finished? A. Only laid out.

Q. That was laid out on a hillside, too, was it?

A. Yes, quite a steep hillside.

Q. And as you laid it out it was to be about the same as the Dawson ditch was?

A. Yes, pretty much.

Q. And built under exactly the same conditions except the hillside was perhaps a little steeper?

A. A little steeper, and a little more loose rock.

Q. But that ditch has not been completed?

(Testimony of L. S. Robe.)

A. They have built portions of it, I believe, but it has not been entirely completed.

Q. Now, in connection with your work of course you had to build penstocks to get the water from the ditches into the pipes? A. Yes, sir.

Q. That is the only way you can get the water from a ditch or flume into a pipe, isn't it?

A. It isn't the only way—it is the only proper way.

Q. The only practical way. There might be other ways, but that is the way that everybody uses.

A. Yes. [365]

Q. Now, in building a penstock, and where you have built your penstocks generally, you would have sort of a settling vat in the bottoms to take care of the rocks and large boulders, is that right?

A. There is generally an apron provided,—good engineering practice requires a screen or trommel in the flume just prior to its entry.

Q. To take the leaves out?

A. To take the leaves or any other foreign matter other than sand. Sand is taken care of by a sluice incline inside of the tank.

Q. Now, if in this case a sand-box were installed some distance above the penstock to take care of that, there would be no necessity of employing the penstock for that purpose, would there?

A. If it was a short distance there would be no necessity.

Q. Then your answer in that regard is based upon the proposition that no settling-box exists a

(Testimony of L. S. Robe.)

short distance above the penstock, and if such a box did exist of course the penstock would not have to serve that purpose—that is true, isn't it?

A. Yes.

Q. Now, where you use the water for power purposes, whether it is to force water through a nozzle in connection with hydraulic works or to force it through a nozzle in a power plant, you would have to steady the flow of water in the penstock, wouldn't you?

A. It is considered good practice, yes, sir.

Q. But where the penstock is used as a mere funnel to get the water into the pipe from the flume, and the service pipe connects it with another tank lower down, which is a large tank supplied with an overflow, and that service pipe is kept 100 per cent open and is larger than the flume leading into the penstock, that would create a different condition, wouldn't it?

A. In that case that would not be a penstock then, Mr. Hellenthal. [366]

Q. In that case it would simply be a connection between the flume and pipe, isn't that true?

A. It would not be a penstock.

Q. It would not be a penstock in the technical sense of the word? A. Nor an impound.

Q. It would simply be a funnel to get the water from one device into another?

A. It would be a portion of your carrying system.

Q. It would be a portion of the carrying system, exactly. In that case, where the service pipe, as I

(Testimony of L. S. Robe.)

have described, is larger than the flume emptying into the funnel, or whatever it is—we refer to it here as a penstock although, as you say, it is not technically a penstock—there would be no occasion for any overflow at that penstock, would there?

A. If that was required as a settling tank or a reservoir, just as I stated in my evidence before, there should be sufficient waste way irrespective of the large pipe.

Q. But where the penstock is not used as a reservoir or a settling tank but merely constitutes a device to get the water out of the flume into the pipe, and the pipe is a greater carrying capacity than the flume that empties into it, there would be no occasion for any overflow or spillway at the penstock, would there?

A. You will pardon me, Mr. Hellenthal—

Q. Answer my question.

A. I cannot answer it because it seems to me that is a reservoir there, an impound, and if it is an impound, or something to collect water, there should be a waste way.

Q. Exactly,—you and I agree upon that, but where it is neither a reservoir nor an impound, but is a mere carrying device to carry the water, that is a different proposition, isn't it?

A. There is another point enters into it, that if I might be permitted—

Q. Answer my question.

A. I don't think I could answer it unless we insert an additional [367] point, and that is if it

(Testimony of L. S. Robe.)

is a temporary impound there should be sufficient grade given to it to take care of any possible excess water at any time.

Q. Yes, we agree on that, but if the service pipe is larger than the flume there is no chance of any water being impounded there, is there?

A. There is a possibility, yes. The evidence, I think, showed there was 2,700 feet of pipe line with a valve at the end.

Q. If the valve was closed the water would be impounded? A. There is the word "if."

Q. But if that valve is open, 100 per cent open, with a padlock on it so it cannot be closed, then would there be any chance for an overflow?

A. I think so, absolutely,—but if you have got a free flow there—if that 30-inch pipe is intended for a waste way, why have a valve on the end of it?

Q. Now, Mr. Robe, if you were putting that in there and intending it as a free flow,—putting it in there as an engineer—don't you know that sometimes you would have to repair things, and that it is a safe engineering proposition to put at least one valve in every pipe?

A. Always, Mr. Hellenthal.

Q. Always, certainly.

A. But we know the natural law of disaster. It is generally those times when we have those valves closed that trouble comes elsewhere.

Q. But if you have a valve that has never been closed and cannot be closed because it is locked,

(Testimony of L. S. Robe.)

unless the superintendent stands there and sees to it, that creates a different condition, doesn't it?

A. I fail to see it.

Q. You fail to see it, all right,—all your testimony, then, Mr. Robe, is based on that proposition. Now, look at this drawing I have got here, which is probably not as elegant as you could make, but I think it will serve the purpose. We [368] will assume now that this is the flume, where I am pointing, leading into this, which we will call the penstock, although as you suggested technically speaking it is a part of the carrying system and is not a penstock, but I am merely calling it a penstock for the purpose of this interrogation,—here is a service pipe leading from this penstock, and this service pipe will carry twice as much water as this flume can carry in,—you understand me?

A. Yes, sir.

Q. Now, I want you to explain to that jury what sense there would be in putting an overflow there so that the waste water could get away, if there is any sense in it, under the conditions, now, that I have named, and not under the conditions of penstock generally, understand? A. Exactly.

Q. I am directing your testimony to this particular penstock, and upon this particular point,—what sense would there be—

A. I can state three points if you will permit me.

Q. All right, I will permit you.

A. We will start at the flume leading into the penstock, at the trommel or screen for handling the

(Testimony of L. S. Robe.)

material that comes down with the water, should that get out of kilter and the material slip over into the penstock, so called, and thence down that 30-inch pipe, it would only be a short time before there would be a plug in that pipe and the attendant back water and then an overflow. That is point one. Point two; we know that human nature at best is more or less careless. Suppose some man that had a grudge against the company should get hold of that key and close that valve down there—there would be trouble—there would be a back flow. That is point two. There might be slides that would come along—slides not attendant on this water line at all—that would come along and mash the pipe, or take it out altogether. That is point three.

Q. That is, it is possible that land slides might smash the pipe? [369] A. Yes, sir.

Q. Then the three reasons that you give for assuming that there might be an overflow here, are, first, somebody with a grudge against the company might turn this valve off; the other one is that the penstock might get out of order so that this pipe might be blocked up with debris? A. Exactly.

Q. And the other one is that land slides might come along and knock this pipe out altogether?

A. Yes, it might.

Q. All right. Now, let's turn to the flume. Somebody having a grudge against the company might put a rock in there and stop it up, might they not? A. It is possible.

(Testimony of L. S. Robe.)

Q. That would cause an overflow right above the rock, wouldn't it? A. It might.

Q. Something might happen over here and a big stump fall into the flume, or something else might block that flume at any point, might it not?

A. Yes.

Q. That would block the flume, wouldn't it?

A. Yes, sir.

Q. Or a land slide might come along and knock this flume out altogether? A. It might.

Q. That would cause an overflow? A. Yes, sir.

Q. Then all the conditions you spoke of in connection with the penstock would apply to the flume?

A. No, sir; you have an artificial condition there in the penstock which you have to take care of, and it behooves an engineer to take precaution to see that ample protection is given.

Q. You refer now to the valve?

A. The entire service pipe.

Q. This flume leads back a matter of three miles—that is considerably [370] longer than the pipe, isn't it? A. Yes, sir.

Q. Isn't it also a fact that that flume might break anywhere,—such things do happen?

A. I suppose so.

Q. You would not build a flume immediately under that flume for fear the flume might break, would you?

A. That is not pertinent to the case, 'Mr. Hellen-thal.

Q. That would not be good practice?

(Testimony of L. S. Robe.)

A. No, sir.

Q. You did not build another ditch in Dawson in the loose soil under your ditch in case that water should run over, did you? A. I don't think so.

Q. Or in Fairbanks, or any other place; did you?

A. No.

Q. Now, if there were in the mill a large tank, and if this water were extended and flowed into this large tank at the mill, which is used for equalizing purposes — you understand milling somewhat, do you? A. I do.

Q. You know such a tank is used where the penstock is not used as a reservoir, don't you?

A. Yes, sir.

Q. And that tank is used for the purpose of equalizing the flow? A. Exactly.

Q. You know it is very important to keep that flow pretty steady, don't you? A. Yes, sir.

Q. You know if that water diminishes in flow or pressure for one minute it may cause the loss of many thousands of dollars, don't you?

A. Yes, sir.

Q. And you know that that tank must always be kept at the same pressure all the time, don't you?

A. Certainly. [371]

Q. Now, when you have that water in that tank, if you were running a mill you would watch that tank pretty close, wouldn't you?

A. Certainly would.

Q. You would know at all times whether that tank was full or was not full, wouldn't you?

(Testimony of L. S. Robe.)

A. I might not know—I should know.

Q. You should know, yes. Knowing that, you would install at that tank some system of signals, wouldn't you? A. Yes.

Q. Now, then, if at this tank at the lower end of this pipe you have installed, we will assume, a system of signals so that as the water lowered in the tank a system of lights, green lights, would flash on in every corner of the mill, and have in addition to that an alarm that sounded immediately when the water got below a certain level, there wouldn't be much chance of any pipe stopping up and your not knowing it, would there?

A. I don't quite catch that question, Mr. Helenthal.

Q. If there should be showed to be installed in this case, or in any case,—I am not speaking of this particular case, but under the conditions I have given you—if the testimony should develop that there was in the mill a system of lights so arranged electrically that immediately as the water ceased overflowing at the spillway at the mill tank, when it got below the rim, say, a couple of feet, green lights would flash on in every floor of the mill, and in addition to that an alarm would sound that could be heard all over the mill, there wouldn't be much chance for you or anybody else in charge of the mill overlooking the water, would there?

A. No, not in such a case.

Q. You would do just exactly what you said a moment ago you should do, isn't that right?

(Testimony of L. S. Robe.)

A. If I understand the testimony, Mr. Hellenthal, that service pipe—30 inches diameter, was situated about 9 feet below the top of the penstock, so called, is it not? [372]

Q. I don't know.

A. Such a system of signals would give warning only for that service pipe and no further—it wouldn't tell you of the condition of your flume flowing into the penstock.

Q. No—if that service pipe were closed at the place where the valve is, for instance,—if some chap who had a grudge against the company should steal the key and close the valve, one second after he had closed that valve everybody in the mill would know it, wouldn't they, under the conditions I have named? A. Yes, sir.

Q. That is true, isn't it?

A. Yes, sir—ought to, according to your statement.

Q. If a slide should come down and knock that pipe out, one second after the slide hit the pipe everybody in the mill would know it, wouldn't they, under my statement?

A. That system of signals would give warning of lack of flow, but it would not give warning of excess of flow.

Q. If the pipe were knocked out by a land slide there would be a lack of flow, wouldn't there?

A. In that case, yes.

Q. That is my question, answer it, and we won't have so much trouble. Now, if, on the other hand,

(Testimony of L. S. Robe.)

a lot of rubbish would come down here,—if the trommel screen should break down, for instance, and a lot of rubbish should come down and absolutely clog that pipe and stop it up, one minute after the clogging took place those signals would flash on and everybody in the mill would know it, wouldn't they?

A. They would with that service pipe only, and not any other portions of the flume or the penstock proper.

Q. That is not what I am asking you, Mr. Robe. They would know that, wouldn't they?

A. With the service pipe only, Mr. Hellenthal.

Q. If the service pipe were clogged up with rubbish, they would know that, wouldn't they?

A. Yes, sir. [373]

Q. Those are the three instances to which you have referred, aren't they?

A. That is two, only.

Q. I have now given the man who stole the key and shut off the valve, and the land slide knocking out the pipe, and the rubbish coming down and clogging up the service pipe.

A. But it doesn't care primarily for my first point.

Q. What is your first point—see if I can take care of that?

A. The immediate entry from the flume into the penstock.

Q. How would that clog up the service pipe?

A. That is the most important point.

(Testimony of L. S. Robe.)

Q. All right—explain that—what that is.

A. The overflow right there might have been right in the flume close to the penstock, or it might have been in the penstock—you have set out the care taken as regards lights and warnings for the service pipe, but you failed to speak of any care of an overflow there, right at the end of the flume.

Q. All right—you mean up here? A. Yes, sir.

Q. Above the penstock?

A. Exactly that is the point.

Q. All right. Assuming that the flume should break above the penstock at any point, then the men in the mill would get the signal the minute the water in the pipe would run out, wouldn't they, whatever time that would take?

A. The point is, I take it this was blocked—the trommel or screen was blocked and caused an overflow.

Q. All right. Now, let's assume that the trommel screen blocks and that the water flows over the trommel screen, it cannot go over the trommel screen outside of the box and into the pipe both, can it? A. Not flow in both, no.

Q. All right. When the water overflows the trommel screen it [374] ceases to run into the pipe, doesn't it—that is, to the extent of the overflow? A. It ceases to run full, yes, sir.

Q. The mill tank ceases to get its full portion of water, doesn't it? A. Exactly.

Q. The lights will flash on, won't they?

A. Yes, sir.

(Testimony of L. S. Robe.)

Q. And you will have the warning just the same, won't you?

A. You should if it is a good system.

Q. All right. Now, did you ever examine this ground in the vicinity of where this penstock stood?

A. Never have been up there, Mr. Hellenthal.

Q. If that shows that at the end of this penstock there was a hog-back that drained into two gulches, one in each direction, and those gulches were the natural gulches and drainage running down the mountain, that would be sufficient drainage even for an overflow, wouldn't it?

A. It would have to be proven to be safe. It is a matter that could not be taken for granted, Mr. Hellenthal.

Q. That would indicate a safe drainage, wouldn't it. A. Probably would if it flows in there.

Q. Your testimony is based entirely upon conditions that are hypothetical and have nothing to do with this particular case, isn't that true?

A. No, I think not.

Q. You know nothing about the conditions up here, do you? A. Only the slide.

Q. I am speaking about this other matter now, about the flume.

A. I was trying to answer you clearly, the questions you asked me.

Q. With reference to conditions up at the penstock, you were never up there?

A. I never was there, no.

(Testimony of L. S. Robe.)

Q. You don't know what the drainage conditions are? [375]

A. I know the drainage conditions on the hill right at the point of the slide.

Q. But not above?

A. Not from being immediately on that ground at the old penstock, no.

Q. Now, how long was that ditch in Dawson?

A. It was about twenty-odd miles.

Q. How much water did it carry at its intake?

A. It was built for 500 inches—didn't have that much.

Q. Didn't carry quite that much? A. No.

Q. At the intake it was less than 500 inches, you think?

A. It was built for 500—but we would get—

Q. You would only get the maximum a short time in the spring, and it could at the intake carry 500 inches? A. Yes.

Q. How much could it carry at the place where it entered into the penstock?

A. It was slightly larger at the penstock—it had some taps—small streams.

Q. It was enough larger to take care of the other streams that came into the ditch?

A. It was—to prevent possible overflowing.

Q. That water flowed along the hillside, then, for 20 miles in the ditch that you have indicated?

A. Yes, sir.

Q. You say that water coming out at the flume level and flowing over this slide area you have ex-

(Testimony of L. S. Robe.)

amined would cause a land slide?

A. Absolutely.

Q. Running water? A. It surely would.

Q. Do you know what the slope of that hill is?

A. I think,—it is a variable slope at the present time. [376]

Mr. HELLENTHAL.—I think the maximum probably would be about, possibly, 35 degrees.

Q. In the neighborhood of 30 degrees?

A. Yes, roughly.

Q. That is a pretty steep runway for water, isn't it? A. Fairly steep.

Q. If you turned water loose at the upper end of that wouldn't the first thing it would do would be to cut a trench over the surface?

A. It depends on the character of your formation altogether.

Q. You know the formation up there, don't you?

A. You take a clay and gravel admixture and it would not cut as rapidly.

Q. How is that?

A. Take clay and gravel that is firmly imbedded and it would not cut as rapidly as in loam.

Q. No, that is true, but it would cut a trench just the same, wouldn't it?

A. It would cut more or less of a trench.

Q. Yes, if it ran long enough, of course. Now, isn't it a fact that the water would immediately follow that drainage and run down hill in a stream?

A. Water generally follows its lowest level.

Q. It would run in a stream, wouldn't it?

(Testimony of L. S. Robe.)

A. Yes, sir.

Q. It would wear the surface off, wouldn't it?

A. Yes, sir.

Q. Its action would be to wear—that would be its action, wouldn't it? A. Yes, sir.

Q. The fellows on Front Street would get practically clear water, wouldn't they? A. Oh, no.

Q. There might be a little mud in it.

A. I think it would be muddy—probably 75 per cent mud. [377]

Q. But the water would run right down hill right on to Front Street, isn't that true?

A. If it had the grade, yes, sir.

Q. If it had a grade of 30 degrees, as it has there, it would do just as your ditch in Dawson did, it would run, wouldn't it? A. Yes, sir.

Q. It would not soak in any more than it did in the bottom of your ditch, would it?

A. Any new ditch will loose probably 25 per cent of its moisture.

Q. In a dry country?

A. In any country, for a time.

Q. When your ditch is wet, in a wet country it will loose water?

A. Any new ditch will loose 25 per cent of its moisture until it makes itself—until it makes a puddle.

Q. Your ditch is on a slight slope?

A. On a slight slope.

Q. And the reason you put it on a slight slope is so it won't wear out, isn't that right?

(Testimony of L. S. Robe.)

A. Yes.

Q. If you had a ditch on the slope of this mountain-side it would wear out?

A. Depends on your material.

Q. If the material is the same as here and in Dawson?

A. You can build a ditch in pretty bad soil, if you want to run it—

Q. You can build a ditch and still have it flow even if the soil is pretty bad? A. Yes.

Q. If you build it straight up and down it will wear out, won't it? A. Yes.

Q. But if you built it at an angle of 30 degrees it wouldn't wear? A. No, sir.

Q. You would have a river there in a few days, wouldn't you? [378]

A. Of course there is another point,—if your ground is porous the water will drop out of sight.

Q. Loose some of it?

A. Loose most of it, yes.

Q. But on a slope of 30 or 35 degrees you would almost have a waterfall, wouldn't you?

A. Yes, sir.

Q. You have done some placer mining, I believe, Mr. Robe, haven't you? A. Yes, considerable.

Q. Now, we will assume here is a slope of 30 degrees, and here is a body of ground that you want to move, as a placer miner what would be the first thing that you would do?

A. Generally strip the soil of tundra, brush, etc.

Q. And about the next thing you would do would

(Testimony of L. S. Robe.)

be to cut away the toe here, wouldn't you?

A. Generally cut away the toe.

Q. That would be the next thing. Then you would get a stream and you would cut that back as far as you could, wouldn't you?

A. Generally undercut the toe, and cut from the top down.

Q. If you have water enough? A. Yes, sir.

Q. And pipes enough, you may have a stream running over the top? A. Yes, sir.

Q. But if you had water enough only for two pipes you would put both pipes right on here, wouldn't you?

A. If your ground is thawed, yes.

Q. I am speaking as if the ground is thawed, of course,—if you had three pipes you would put them on there?

A. That is a hypothetical question,—you would use one or two pipes for handling the material in front of the conveyor.

Q. You would use one pipe down below here to get the material into your flume?

A. It would be pretty close,—

Q. Whatever it would be, but you would not use any pipe up [379] above here, would you?

A. Not necessarily.

Q. You would put your water down here and undercut it, wouldn't you?

A. Yes, in hydraulicking.

Q. Then you would go to work and wait for it to slide, wouldn't you?

(Testimony of L. S. Robe.)

A. It comes by friction, a little at a time.

Q. The slide doesn't come down all at once, it comes slowly?

A. It depends on your material.

Q. It depends on your material, but generally speaking.

A. Sometimes it masses at once, and sometimes slowly, and small.

Q. If you have loose gravel and stuff you have a small mass? A. Yes, sir.

Q. And if you have clay and more sticky stuff in it the mass is larger, isn't it?

A. Take the Gray mine in California, you would drop probably thousands of tons at a time.

Q. Depends on the clay content of the material?

A. Depends on the material.

Q. If you have loose material the material will slip off easy; if you have clay it will start further back and you get a bigger chunk, isn't that right?

A. No, I think clay generally acts more as a binder. Take examples of roads in this country,—where we have a little clay with our muck or gravel we have a better road, a more solid road, than we have without.

Q. Clay would cause the mass to stick together and come in a bigger bunch?

A. More tenacious. It don't generally come in bunches; it rolls up, generally—

Q. If you were making a cut in this bank here and you had gravel that contained a little clay, you would get a bigger bunch as a result of your under-

(Testimony of L. S. Robe.)

cut than you would if it were loose sand, wouldn't you? [380]

A. The more clay the less size—the clay is tenacious and hard to dislodge.

Q. You would get a larger bunch of soil here, you think, if it were sandy than if it was clay?

A. Absolutely; you would get a larger volume of slide with excess of sand and loam than you would with clay.

Q. You would? A. Absolutely.

Q. Now, if you were running water over the top here—if you have waste water in placer mining—you are familiar with Bowie on Hydraulics, aren't you? A. I have it.

Q. You know what Mr. Bowie tells you don't you? A. Yes.

Q. According to that treatise you placer mine by putting all of your hydraulic nozzles right at the bank, that is right, isn't it? A. Yes.

Q. Then if you have waste water that you cannot use at this place you let it run over here?

A. It has friction—it helps.

Q. It is better to run over the top than it is to run over here? A. Yes.

Q. But that is all the value it has?

A. Generally speaking.

Q. And that is all there is to the placer mining story. A. Yes.

Q. And your assumption here on the hillside is not based on such conditions as I have indicated

(Testimony of L. S. Robe.)

here, of an undercut here, or any of that sort of thing?

A. I don't see any connection between the two at all, Mr. Hellenthal.

Mr. HELLENTHAL.—You don't see any connection between the two but it probably might develop later on. That is all. [381]

Redirect Examination.

(By Mr. RODEN.)

Q. Now, if this trommel screen happened to clog up, Mr. Robe, where would the water go to?

A. It would have gone into the impound or penstock.

Q. And how would the water escape from the penstock?

A. If the valves were open in the service pipes, I presume that those pipes are adequately large to carry the water from the penstock.

Q. But if the trommel screen is blocked up so that water cannot get through the screen it never gets to the service pipe? A. It does not.

Q. Where would it go to in that event?

A. It would go over the edge of the flume, down the hill.

Q. Now, if an engineer were to instal such an appliance as we have described in this case, would he take into consideration—

Mr. HELLENTHAL.—That is not redirect and I object to it. I don't want to have to go into that.

The COURT.—You did not let him finish the question.

(Testimony of L. S. Robe.)

Q. Would he take into consideration the conditions as they existed below?

The COURT.—He may answer that question.

A. A competent man, certainly.

Q. And he would use care and caution in proportion to the possible damage it might do?

Mr. HELLENTHAL.—We object to that as immaterial and not redirect, and the witness is not qualified to speak.

The COURT.—Objection sustained.

Mr. RODEN.—That is all.

Q. (By Mr. HELLENTHAL.) You don't think Mr. P. R. Bradley, and Mr. F. W. Bradley and Jack Richards are competent men, do you?

A. No, I didn't say that—I don't know that it was even built by them. I am just stating my convictions according to my practical experience.
[382]

Q. (By Mr. HELLENTHAL.) You would not think work done by Mr. F. W. Bradley was done by a competent man?

Mr. RODEN.—We object to that as immaterial and argumentative.

The COURT.—The objection is sustained.

Mr. HELLENTHAL.—That is all.

(Witness excused.)

PLAINTIFF RESTS.

(Whereupon court adjourned until 10 o'clock Monday morning.) [383]

DEFENSE.

MORNING SESSION.

March 28, 1921, 10 o'clock A. M.

Mr. HELLENTHAL.—I wish to offer in evidence weather reports of Mr. Summers, the weather man received in evidence in the preceding trial. I will state to the Court that Mr. Summers has been ill, and we have agreed that his testimony given at the other trial may be read in evidence as soon as it is transcribed, so we will offer this now.

Mr. RODEN.—No objection.

The COURT.—Let me understand—you have stipulated that Mr. Summers' testimony in the case of Koski, administratrix, against the Alaska Juneau Mining Company may be received in this trial?

Mr. HELLENTHAL.—Yes, as soon as the stenographer can transcribe it.

The COURT.—And what you offer now is an exhibit in his testimony?

Mr. RODEN.—Yes. Of course with this understanding, if we wish to introduce additional testimony by Mr. Summers it may be done?

Mr. HELLENTHAL.—There is no objection to that,—we might want to ask him something. It is understood that the reading of this exhibit at this time may be waived?

Mr. RODEN.—Yes.

(Whereupon said weather report was received in evidence and marked Defendant's Exhibit No. 1.)

Testimony of W. B. Hargraves, for Defendant.

W. B. HARGRAVES, called as a witness on behalf of the defendant, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. HELLENTHAL.)

Q. You may state your name.

A. W. B. Hargraves.

Q. What is your profession? [384]

A. Mining engineer.

Q. Where were you educated?

A. Massachusetts Institute of Technology.

Q. That is the school that is generally referred to as the Boston Tech? A. Yes.

Q. Now, at that school did you, in addition to your course in mining engineering,—did you also take a course in geology?

A. Yes, sir; I took the geological branch of the the mining course.

Q. Under whom did you take that course in geology—under what professor?

A. Professor Lingren was in charge of the geological department.

Q. He was at the head of the geological department? A. Yes, sir.

Q. There were other professors in the geological department? A. Yes, sir.

Q. Who is Professor Lingren?

A. He is one of the foremost geologists in the country—probably in the world.

(Testimony of W. B. Hargraves.)

Q. After leaving that school what did you do—did you pursue your profession? A. I did.

Q. Where? A. In Northern Ontario.

Q. Where else?

A. Then I came here in 1914, and have been here ever since that time.

Q. How long has it been since you left school?

A. Eleven years since I left school.

Q. It has been eleven years since you left school and you have followed your profession ever since?

A. Yes, sir.

Q. You have been in the Interior? [385]

A. Yes.

Q. You were there in what capacity?

A. Commonly known as scout engineer the first three years I was here.

Q. What they call an expert? A. Yes.

Q. For whom were you working at that time?

A. A. syndicate.

Q. Who was at the head of it—who went in with you?

A. The last time I was in with Mr. Bradley, if that is the time you are referring to.

Q. At first you worked for a New York syndicate in the same capacity? A. I did.

Q. The last time you went in with Mr. F. W. Bradley of San Francisco? A. Yes.

Q. What year were you employed in that capacity by Mr. F. W. Bradley? A. The year 1919.

Q. And since that time you have been employed where? A. At the Alaska Juneau.

(Testimony of W. B. Hargraves.)

Q. You are doing engineering work there at the present time? A. Yes, sir.

Q. And also such geological work as they have to do at the mine? A. Yes, sir.

Q. Now, I direct your attention to a large map standing in the room and ask you if you have seen that map before? A. I have.

Q. Who made it? A. I did.

Q. Does that map correctly show the matters and things delineated upon it? A. It does.

Mr. HELLENTHAL.—I offer the map in evidence. [386]

Mr. RODEN.—No objection.

(Whereupon said map was received in evidence and marked Defendant's Exhibit No. 2.)

Q. Referring now to Defendant's Exhibit No. 2, commencing at the upper corner at the point marked "Lights," will you please explain to the jury what those lights are—the place where I am now pointing marked "lights"?

A. Those are lights that we have at that point in the tunnel, where the two portals branch, the old portal coming straight down on the map, and the new portal curving around so we can tram our ore cars there. There are three sets of lights in pairs, and those are always lighted there.

Q. That is at the point marked lights?

A. Yes.

Q. Now, where I am now running my pointer, at the place marked portal, is that what you refer to as the old portal?

(Testimony of W. B. Hargraves.)

A. That is the old portal, yes, sir.

Q. Is that now used for the purpose of tramming ore? A. No.

Q. What use is made of that portal?

A. Use that for a change room now.

Q. I mean what use was it put to, Mr. Hargraves, in 1920, at the time of the slide?

A. It was used for a passageway for the men; and then there was a ditch to carry water to the other end of No. 3 tunnel.

Q. The water ditch came from Gold Creek?

A. Yes, sir.

Q. Where did the flume line and ditch line commence on Gold Creek?

A. It commences way up above our bunkhouse and boarding-house, beyond the tunnel—probably over a mile and a half beyond the other end of this tunnel.

Q. It would be more than a mile from the point where you have marked “lights” there?

A. Oh, yes, far more than a mile,—I would say a mile and a half—I don’t know exactly. [387]

Q. The flume commences a mile and a half beyond that point, is that true?

A. I should say so; I don’t know exactly—that is merely a guess; I don’t know exactly.

Q. I am merely asking you approximately what the distance is from that point where the intake of the flume is to the place marked lights. How is the water carried from the intake of the flume to the mill?

(Testimony of W. B. Hargraves.)

A. Carried by flumes, and ditches and pipe-lines.

Q. Now, commencing at the intake, how does the water run from there,—how is it taken out of the creek, through a flume or ditch? A. Flume.

Q. That flume extends how far?

A. Oh, that runs about 900 feet; then it goes into a tunnel.

Q. Now, in the tunnel how is the water carried?

A. Carried just in a ditch. There is no flume there—and it comes out of the tunnel again—at the mouth of Gold Creek tunnel, and is carried there in a flume to the other end of No. 3 tunnel.

Q. Now, No. 3 tunnel—that is up in the Jualpa Basin, right below Snowslide Gulch? A. Yes.

Q. That is the point you referred to where the water is again picked up in the flume?

A. Yes, sir.

Q. That is a mile or so, roughly speaking, up the basin from the point you have marked lights?

A. Yes.

Q. From there on it is carried in a flume to where?

A. It is carried in a flume to the other end of No. 3 tunnel.

Q. No. 3 tunnel—that is the tunnel that you have been testifying to, where the lights are?

A. Yes, sir.

Q. That is the tunnel that extends through Mount Roberts, that is [388] it, isn't it?

A. Yes, sir.

Q. Now, beyond the north portal of No. 3 tun-

(Testimony of W. B. Hargraves.)

nel—by north portal I mean the portal on the Junalpa side—between the Gold Creek tunnel and the north portal of No. 3 tunnel the water is carried in a flume? A. Yes, sir.

Q. Where is it carried with reference to the hillside of Mount Roberts?

A. Carried right along the hillside.

Q. Part of it on trestlework? A. Yes, sir.

Q. And part through tunnels?

A. No, there is none of it through a tunnel between those two points.

Q. That is entirely along the hillside until it comes to the north portal of No. 3 tunnel, then how is the water carried?

A. Carried through a ditch in No. 3 tunnel.

Q. And that ditch extends to where?

A. Extends to what is marked there “the old portal.”

Q. Where I now have my pointer, that is the old portal? A. Yes, sir.

Q. And that passes through the tunnel where the word “lights” appears? A. Yes, sir.

Q. Now, at the point “lights” there is a tunnel branching off and you have marked here No. 3 tunnel, what is that?

A. That is a branch to the new tunnel—the new portal, where your pointer is at the new tunnel.

Q. Where my pointer is now, at the point marked “new portal,” that is the portal of a new tunnel driven since the original tunnel was driven?

A. It is a cut-off to make the curve easier.

(Testimony of W. B. Hargraves.)

Q. And that was put in there since the new tunnel was driven? A. Yes. [389]

Q. And it joins the old tunnel at the point marked "lights"? A. Yes, sir.

Q. Now, the ore trains in running from the mine to the mill, what course do they take?

The COURT.—Do you mean what course do they take now?

Mr. HELLENTHAL.—No, I mean what course did they take in January, 1920.

The WITNESS.—They came out the new portal.

Q. They came out the new portal at the time of the slide? A. Yes, sir.

Q. And had been doing that for some time previously? A. Yes, sir.

Q. The ore trains took the course following No. 3 tunnel until you come to the place marked "lights," and then took the new tunnel out to the new portal? A. Yes.

Q. And thence to the mill? A. Yes, sir.

Q. The men in coming from the mine, where do they get off the train, if they ride on the train?

A. At the point marked "lights."

Q. Then where did their course lead them to?

A. Came out the old portal.

Q. Came out the old portal, down this way, to the place you have marked "old portal"?

A. Yes, sir.

Q. Now, we come down to a place indicated on your map as "Snowsheds," where were they with reference to the old portal at the time of the slide?

(Testimony of W. B. Hargraves.)

All of these things that I am asking you about now, I mean where were they at the time of the slide, January 2d, 1920?

A. Just outside of the mouth of the old portal.

Q. There were snowsheds there at that time?

A. Snowsheds there, yes. [390]

Q. How were those snowsheds constructed?

A. They were constructed of heavy timbers—they are right in the gulch there, Mr. Hellenthal.

Q. What I mean more especially, Mr. Hargraves, what was their purpose, and what was the purpose of constructing the snowsheds—what purpose did they serve?

A. To shed the water coming down Portal Gulch, to protect the portal.

Q. The water came down from where?

A. About the line of the gulch on the ground above.

Q. And those snowsheds were put there for that purpose. Now, immediately below the roof of the snowsheds, what existed there at that time?

A. We had the flume—the flume came out from the old portal—the flume ran right along the edge of those snowsheds.

Q. The flume came out of the old portal from a point here, at the snowsheds and ran at the edge of them? A. Yes, sir.

Q. Is that flume still there?

A. No, sir; it has been moved under the platform.

Q. But it was there at the time of the slide, Janu-

(Testimony of W. B. Hargraves.)

ary, 1920, and for some time prior to that?

A. Yes, sir.

Q. Where did the flume lead to from this point where the sheds were?

A. Leads over to a penstock.

Q. Leads over to a point marked "penstock" on the map? A. Yes, sir.

Q. I direct your attention, Mr. Hargraves, to a photograph, and ask you to state when that was taken—you were present when that was taken?

A. Yes, sir.

Q. When was that picture taken?

A. January 7, 1920. [391]

Q. From what point was that taken, approximately?

A. Just outside of the snowsheds, looking towards the penstock—to the right of the snowsheds, over on the railway track.

Q. Does that picture correctly represent the conditions as they were there at the time of the slide?

A. It does.

Q. I mean with reference to the buildings?

A. Yes, sir.

Q. And the water flowing over there was flowing over there at the time you took the picture?

A. Yes, sir.

Mr. HELLENTHAL.—I offer this picture in evidence.

Mr. RODEN.—No objection.

(Whereupon said picture was received in evidence and marked Defendant's Exhibit No. 3.)

(Testimony of W. B. Hargraves.)

Q. The upper part of this picture, what does that represent? A. That is the snowshed.

Q. Below that, what is that?

A. That is the flume.

Q. How was the flume below the shed covered, if at all?

A. Covered with this slanting roof to keep the water and the snow from running into the flume.

Q. I now direct your attention to another photograph and ask you to state whether that was taken in your presence? A. Yes, sir.

Q. When was that taken—what day?

A. The 7th of January, 1920.

Q. That was the same time the other picture was taken? A. Yes, sir.

Q. Where was that picture taken from?

A. That was taken from Gastineau Avenue, just below the slide.

Q. Does the water running over the snowsheds in the previous picture, and over the flume, show in that picture? A. Yes, sir. [392]

Mr. HELLENTHAL.—I will offer this picture in evidence.

Mr. RODEN.—No objection.

(Whereupon said picture was received in evidence and marked Defendant's Exhibit No. 4.)

Q. Now, Mr. Hargraves, have you observed this water running over the snowsheds and then shooting off on the flume, on other occasions?

A. Yes, sir; several times.

(Testimony of W. B. Hargraves.)

A. Under what conditions would the water run that way?

A. Oh, only on comparatively heavy rainfall.

Q. Whether it came from melting snow or heavy rainfall?

A. Ordinary rainfall doesn't show.

Q. Exceptionally heavy rainfall or run off of heavy snow?

A. There is some water comes down in an ordinary rainfall, but not to amount to anything.

Q. Have you observed it on Front Street on any occasion?

A. I observed it on Front Street the day that picture was taken.

Q. What appearance does the water shooting over the flume make from Front Street—how does it look?

Mr. RODEN.—We object to what appearance it will make—it is drawing a conclusion. Let the jury draw their own conclusion as to what appearance it makes.

The COURT.—Everything calls for a conclusion.

Mr. RODEN.—It isn't his place to draw the conclusion.

The COURT.—How is he going to describe it unless he tells how it appears? What do you mean by what appearance does it make—do you mean how it appears to him?

Mr. HELLENTHAL.—Certainly.

The COURT.—He may testify how it looks—how does it look?

(Testimony of W. B. Hargraves.)

The WITNESS.—Anybody looking up there would see the biggest part of the water, and they would think it was coming out of that flume.

The COURT.—That was not the question exactly.

Q. How does it look—does it look like water coming from the [393] top of the flume?

A. It looks as if it were coming from the top of the flume, yes.

Q. Does it look like one stream from Front Street?

A. Yes, it looks like one big stream.

Q. And the width of that stream, would that depend upon the volume of water coming over at the time you looked at it? A. Yes, sir.

Q. Now, I want you to step down here and point out to the jury on this Exhibit No. 4 the place where that water flows over.

Q. Here is the top of the snowshed, here is the water coming over here, and here is the flume.

Q. Now, I show you here another picture, and ask you if you were present when that was taken?

A. Yes, sir.

Q. Where was this picture taken from?

A. That was taken from the Pacific Coast warehouse—freight sheds.

Q. That is on the Pacific Coast wharf?

A. That is on the Pacific Coast wharf—on the new wharf.

Q. Taken on the same day?

A. Taken on the same day.

Q. In your presence? A. Yes, sir.

(Testimony of W. B. Hargraves.)

Mr. HEILENTHAL.—I offer that in evidence.

Mr. RODEN.—No objection.

(Whereupon said picture was received in evidence and marked Defendant's Exhibit No. 5.)

Q. Calling your attention now to Exhibit No. 5, does that also show that stream running from the top of the flume there? A. It does.

Q. I wish you would step down here and show the jury just where that stream shows in that picture, and how it shows.

A. There is the snowshed, and there is the flume.

Q. As it shot off of the flume did it shoot out from the flume? [394] A. Yes.

Q. Didn't drop right down but shot out from it?

A. It would splash where it dropped from the shed.

Q. Now, on the snowsheds the water runs in how many gutters? A. Runs in two, principally.

Q. Two gutters? A. Yes.

Q. And the gutters point in what direction as they come off the sheds and on to the flume?

A. They converge.

Q. They run together? A. Yes, sir.

Q. So that the streams of the two gutters would run into one as they hit the flume?

A. Well, nearly so.

Q. That is, they would not come right together, but they would hit the flume and come close together, so in emerging from the flume if there was a large volume of water it would appear to be one stream?

Mr. RODEN.—We object to that question. I do

(Testimony of W. B. Hargraves.)

not understand that any water comes from the flume. The witness says it comes from the snowshed.

Mr. HELLENTHAL.—All right—I will make that plainer.

Q. The water from those two gutters—

Mr. RODEN.—Which two gutters?

Mr. HELLENTHAL.—On the snowsheds.

Mr. RODEN.—It hasn't been shown that any gutters exist on the snowsheds.

Q. Where did the gutters exist, so Mr. Roden will understand it?

A. One gutter comes down in this corner and the other gutter comes here.

Q. Can you make a mark there so it will be visible showing those two gutters and the direction they take? A. I think so. [395]

Q. Those were the two gutters that were there at that time. Now, in what direction did they point as they emptied on the roof of the flume—the flume is right below them?

A. They converge, as drawn on the map there.

Q. That is, they come towards one another?

A. Yes.

Q. Come together? A. Yes.

Q. And the water coming from those two gutters comes together and falls on what?

A. Falls on that shed that is on the flume.

Q. On the roof of the flume; and as it comes out from there where does the water come from as it spills off down the hill?

(Testimony of W. B. Hargraves.)

A. It comes from that shed on the flume.

Q. Comes from the roof of the flume?

A. Yes, sir.

Q. That is a mere cover on the flume?

A. Yes, sir.

Q. Lays right on top of the flume?

A. Yes, sir.

Q. That is right? A. Yes, sir.

Q. All right. Now, one witness has testified here, I think, of seeing some water at a bend in the flume. Will you describe to the jury where a bend in the flume occurs? Is it a bend, as the witness here has testified to? Did you hear his testimony?

A. No; there is a bend of the flume right at this point, and another bend under the change house. Those are the only two bends—

Q. The bend under the change house, does that show from the street? A. I don't think so.

Q. Where is that bend that shows from the street with reference to the water that flows over the flume? [396] A. Practically at that point.

Q. Now, what is the distance from the portal of the old tunnel to that point where the water comes over the flume during heavy rains, as you have testified to? A. About 15 feet.

Q. About 15 feet in what direction?

A. To the northwest—towards town.

Q. Northerly from the portal of the tunnel to the place where the water comes over the roof of the flume is about 15 feet?

(Testimony of W. B. Hargraves.)

A. Yes, sir.

Q. And that was the condition on January 2, 1920? A. Yes.

Q. Now, what is the distance from the top of that flume where the water shot over to the ground?

A. Oh, it would be about 20 feet.

Q. About 20 feet? A. Twenty or 25 feet.

Q. The flume is not there now so you cannot measure it? A. No.

Q. You have taken the measurement, however, from the top of the roof of the shed to the ground?

A. Yes, sir.

Q. And that is about how much?

A. That is about 25 feet.

Q. And the distance between the roof of the shed and the flume would be 3 or 4 feet?

A. Would be about 5 feet.

Q. All right, so the distance from the top of the roof of the flume to the ground straight down would be about 20 feet? A. About 20 feet.

Q. What is the condition of the hill there, as to whether it slopes or not?

A. It is very steep right there.

Q. If the water shot out from the roof of the flume the water would [397] hit the ground at a distance of approximately how many feet?

A. Perhaps 5 or 10 feet more—might be nearer 30 feet if it shot out 3 or 4 feet.

Q. Depends on the volume of water and the distance it shot? A. Yes.

Q. But it would at least be 30 feet—

(Testimony of W. B. Hargraves.)

A. It would at least be 25 feet.

Q. Maybe 25 feet, and if there was a larger volume of water and it shot out more it might be 40 feet?

A. I don't think it would be that far.

Q. You don't think it would be that far, but it would be a distance of 25 or 30 feet?

A. Twenty-five to thirty feet, yes, sir.

Q. That flow of water that came over the top of the flume there, as it ran off, in what direction did that run—in what direction did it face?

A. Faces Gastineau Avenue or Franklin Street.

Q. In what direction would it face to a man—do you know where the soda works are on Front Street? A. Yes, sir.

Q. From there to the city wharf, in what direction would it face to a man standing in that neighborhood? A. He would be facing it.

Q. Looking right into it?

A. Practically, yes, sir.

Q. And to a man standing at the Femmer and Ritter wharf, how would it be there?

A. Would be about the same—wouldn't be any great difference.

Q. A man on Gastineau Avenue, somewhere in the vicinity of the slide, how would that be—about the same?

A. Would be right below it—be facing it, if he was in a position to see it.

Q. And one being in that vicinity, anywhere in there, the stream would come right down and he

(Testimony of W. B. Hargraves.)

would see the broad side of it?

A. Yes, sir. [398]

Q. He couldn't see the breadth of it?

A. I don't know what you mean by the breadth of it.

Q. He couldn't see the thickness of the flow?

A. No, he couldn't tell how thick it was.

Q. He could tell how wide it was?

A. Yes.

Q. Coming now to the penstock, the penstock that is shown on this map, that was there in 1920, on the day of the slide? A. Yes, sir.

Q. You are familiar with the construction of that penstock? A. Yes, sir.

Q. There is evidence here with reference to a spout that came out of it—do you know where that spout was situated? A. Yes, sir.

Q. What kind of a spout it was, too?

A. Yes.

Q. Now, where was that spout situated on the penstock—on what side of it?

A. On the north side.

Q. The penstock was a square building?

A. Yes, practically—a rectangular building.

Q. And the penstock was out on the face looking towards the north? A. The spout, you mean?

Q. Yes, the spout. A. Yes.

Q. How is that indicated on your map—does the spout of the penstock show on this map?

A. Yes.

Q. Now, in what direction did that spout point

(Testimony of W. B. Hargraves.)

with reference to Front Street?

A. It is north, parallel to Front Street—practically parallel.

Q. The direction of the spout is practically the same as the direction of Front Street?

A. Yes, practically so. [399]

Q. Water coming from that spout would flow in what direction?

A. Flow in the direction parallel with Front Street, approximately.

Q. A person standing on Front Street, in the neighborhood of the soda works or anywhere down there, would see what part of the flow coming out of the spout?

A. He would be looking at it edgeways.

Q. Could he see the width of it at all?

A. No, he couldn't see the width of it at the soda works.

Q. He could only see the thickness of it?

A. Yes, sir.

Q. The depth of it, in other words?

A. Yes, sir.

Q. It would be flowing up towards Mount Juneau—in that direction?

A. That general direction, yes.

Q. What is the distance from the spout to the portal of the tunnel?

A. I think I have it marked there, 128 feet.

Q. Now, what is the distance from the spout to the ground? A. It is about 6 feet.

(Testimony of W. B. Hargraves.)

Q. Now, Mr. Hargraves, what was that spout put there for?

A. Discharge refuse, leaves, or whatever solid matter came through with the water.

Q. Screened out of the water how?

A. Screened with the trommel screen—the revolving screen.

Q. I wish you would describe that screen to the jury.

A. Well, it is a small trommel screen—it is conical, like a section of a cone, about 7 or 8 feet long—I don't know the exact size of it—about 3 feet in diameter—and it is like a cylinder of wire, driven by a motor, and the water comes in from the flume into one end of this screen, and the water drops through the screen; any refuse, leaves, or anything of that sort, is carried by the motion of this screen—the spiral motion of the screen, and drops out the chute at the other end. [400]

Q. The water comes in at the upper end of the screen—the screen lies almost horizontally?

A. Oh, practically so.

Q. And flows through it into what?

A. Into what we call a penstock—the water drops through that screen.

Q. And the leaves and moss and things of that kind, whatever there is in the water, what becomes of that?

A. The motion of that screen will carry it to the spout at one end of the penstock—the other end of that building.

(Testimony of W. B. Hargraves.)

Q. What is that spout put there for?

A. To discharge the leaves and solid material.

Q. Whatever might be in the water?

A. Yes, sir.

Q. What does the screen do—does it revolve or stand still? A. Revolves.

Q. Driven how? A. By an electric motor.

Q. What effect does the revolving of the screen have with reference to the moss and stuff?

A. The moss is discharged by the spiral movement of the screen; or if there is not enough the leaves and moss perhaps would not be carried through—they would simply drop to the bottom of the screen—it has both effects.

Q. The purpose of having a revolving screen is to keep the screen clean? A. Yes.

Q. To keep the moss or whatever there may be in the screen from stopping up the meshes?

A. Yes.

Q. And the spout was there to take care of that refuse matter? A. Yes.

Q. From the penstock where was the water carried, at that time?

A. Carried through a pipe-line system. [401]

Q. Leading from where?

A. Leads from the penstock to the mill—then there is a branch to the city high pressure line.

Q. How many pipe-lines led from the penstock?

A. Three.

Q. Where did they lead to, and what was their size?

(Testimony of W. B. Hargraves.)

A. The largest pipe left the penstock—

Q. Let us start with the small one.

A. The 4-inch line from the penstock, that comes down and goes to the power-house—the water from that is used for boiler feed purposes.

Q. That 4-inch line leads to the point at the extreme right-hand corner of your map marked “power-house,” doesn’t it? A. Yes.

Q. Where is the next pipe-line?

A. There is an 8-inch line that leads from there down to the corner of the administration building.

Q. It leads to this point marked on your map “administration buildings”?

A. Yes, sir.

Q. What is that water for?

A. That is for the city fire protection system.

Q. What other pipe leads from the penstock?

A. There is a 30-inch pipe leads from the penstock.

Q. What is the size of the city pipe—did you state?

A. It is an 8-inch pipe down as far as the administration building, from there on it is 12.

Q. What other pipe leads from it, now?

A. A 30-inch pipe leads from the penstock—that is the main line.

Q. Where does that lead to?

A. Leads to the mill; it is reduced to 20 inches then before it gets to the mill.

Q. Now, that leads to the place marked on your map “8000-ton mill”? A. Yes, sir. [402]

(Testimony of W. B. Hargraves.)

Q. That is the mill you mean? A. Yes, sir.

Q. Right alongside of that mill is a round circular affair that is marked "mill tank"—what is that?

A. That is where the water leads to directly.

Q. That is where the 30-inch pipe discharges?

A. Yes, sir.

Q. Is that right? A. Yes.

Q. Is that 30-inch pipe a 30-inch pipe all the way?

A. No, sir; it has two reductions—30 to 24 and 24 to 20.

Q. The first reduction is from 30 inches to 24 inches? A. Yes.

Q. Where is that reduction made?

A. It is about 175 feet from the penstock.

Q. The point you have marked here "30 to 24 reducer"?

A. That is about the place, yes, sir.

Q. And the pipe-line is the line indicated on your map as "pipe-lines"—is that right?

A. Yes, sir.

Q. Is the pipe again reduced?

A. Yes; about where your pointer is from 24 to 20 inches.

Q. From there on is it again reduced?

A. No; 20-inch line from there to the mill tank.

Q. That discharges right into the mill tank?

A. Yes, sir.

Q. Now, at the mill tank, what is there there in the way of an overflow, if anything?

(Testimony of W. B. Hargraves.)

A. We have an overflow from the top of the mill tank to the tailings flume.

Q. That is marked on your map "tailings flume"?

A. Yes, sir.

Q. And the point that is marked "overflow" is the overflow from the mill tank?

A. Yes, sir. [403]

Q. What is that overflow designed to do?

A. That is to take care of the surplus water.

Q. Any surplus water occurring at any time flows over at that point? A. Yes, sir.

Q. What use is made of that surplus water?

A. It is used as a booster to help move the tailings.

Q. To help move the tailings down the tailings flume? A. Yes.

Q. Do you know what, if any, contrivances there are in the mill—do you know what the situation is at the mill with reference to the necessity of keeping this flow steady?

A. Why, that is so in all mills—you have to have a steady head.

Q. Have to have a steady flow?

A. A steady flow—that is, an even pressure on your water system. If you don't you are in trouble all the time.

Q. The pressure has to be kept stationary, at a fixed point?

A. Yes, sir; even a small variation will cause trouble.

Q. And the mill tank that you refer to and which

(Testimony of W. B. Hargraves.)

is marked on the map as "mill tank" was put there for that purpose? A. Yes, sir.

Q. For the purpose of equalizing the pressure?

A. Yes, sir.

Q. Do you know what, if any, contrivances were installed there at the time to notify people in the mill if the water ceased flowing?

A. I have heard about them—I don't know about them.

Q. That doesn't come within your department?

A. I know they are there now.

Q. That is another branch of the work. All right. Do you know the size or carrying capacity of the flume line leading to the penstock?

A. Yes, sir.

Q. You have measured that yourself?

A. Yes. [404]

Q. What is the carrying capacity of the flume line leading to the penstock?

A. You refer to the flume from the portal?

Q. I refer to the carrying capacity of the flume at its smallest place, of course—how much water can be carried to the penstock through the flume?

A. All that can come is what can come through the ditch in No. 3 tunnel—that is only about 20 cubic feet per second.

Q. Now, Mr. Hargraves, what is the difference in elevation between the penstock and the mill tank?

A. Oh, it is about 125 feet.

Q. The mill tank is 125 feet lower than the penstock? A. Yes, about that.

(Testimony of W. B. Hargraves.)

Q. The pressure on the water there would be 125 foot pressure, about, if the pipe were full?

A. Yes, and if you had the mill tank closed up in any way.

Q. Yes, I know—that is the head above it?

A. That is the head above it—there isn't that pressure.

Q. The pipe leading from the penstock to the mill tank, was that closed or open?

A. Open.

Q. The flow was steady into the mill tank?

A. Yes, sir.

Q. There was nothing to disturb it at the mill tank—there is no nozzle there, or anything of that kind?

A. No, sir.

Q. Just served as a pipe to let the water run through freely?

A. Yes, sir.

Q. You have already testified, now, I think, that you measured the ditch leading through No. 3 tunnel?

A. Yes, sir.

Q. And that ditch is part of the line carrying the water to the penstock?

A. Yes, sir. [405]

Q. No water could come to the penstock, I mean, except such as could pass through that ditch?

A. That is all.

Q. What is the size of the ditch—the carrying capacity?

A. About 20 cubic feet per second.

Q. Have you also calculated the carrying capacity of the pipe leading from the penstock to the mill tank?

A. Yes, sir.

Q. What is the capacity of that pipe-line?

(Testimony of W. B. Hargraves.)

A. About 45 cubic feet per second.

Q. A little more than twice as much as the flume leading into the penstock? A. Yes, sir.

Q. The wooden part of the flume leading into the penstock would carry more water?

A. Would carry more water than the ditch through No. 3 tunnel.

Q. If the ditch were as large as the wooden part of the flume it would carry approximately—

A. What the pipe-line would carry—about 45.

Q. Approximately what the pipe-line would carry? A. Yes, sir.

Q. The two would be about the same size, but because of the fact that the water had to be carried through that ditch the wooden part wouldn't run more than half full?

A. Couldn't run more than half full.

Q. Under those circumstances could any water ever overflow at the penstock? A. No, sir.

Q. No possible chance?

A. No, sir; water cannot overflow from the penstock; water stands in that pipe-line 7 or 8 feet below the penstock and that is the highest it can get.

Q. The legend on that map "where water overflowed sheds," that is the point you have referred to as the place where the water [406] ran off over the flume, about 15 feet north of the portal?

A. Yes, sir.

Q. And you have marked here "distance of spout to the ground, 6 feet"—that is the spout at the penstock—the discharge spout for the moss?

(Testimony of W. B. Hargraves.)

A. Yes, sir.

Q. Now, the map also shows at the lower end a point marked "office"—what office is that?

A. That is our general office.

Q. The general office of the Alaska Juneau Company down near the wharf? A. Yes, sir.

Q. Also a place marked "warehouse"—what is that?

A. That is our warehouse supply office—one of our warehouses.

Q. And the incline here marked "wharf incline tramway" at the extreme right hand of the map, what is that?

A. That is the tram that goes from the wharf to the main tram system to the mine—that is the only way we can get our supplies up to the main line.

Q. That is the way the supplies are taken from the wharf to the tram? A. Yes.

Q. That is an incline leading up to the level of the railway? A. Yes, sir.

Q. The mill marked "8,000-ton mill"—that is the big mill? A. Yes, sir.

Q. Sometimes called the ball mill?

A. There are balls in it.

Q. That is the new mill?

A. That is the new mill, yes.

Q. The place up above there where the tramway apparently comes across a portion of the mill, what is that?

A. That is the tipple of the mill, where the cars are dumped. [407]

(Testimony of W. B. Hargraves.)

Q. That is the uppermost part of the mill?

A. Yes, sir.

Q. And that is referred to as the tippie?

A. Yes, sir.

Q. The square here, what is that?

A. That is the stamp mill.

Q. Also used for crushing rock? A. Yes.

Q. And was being used at the time of the slide?

A. Yes, sir.

Q. And the ball mill was running at that time,

A. As far as I know—I wasn't there then.

Q. They were in operation, I mean—I don't mean they were running at that moment, but during that period these two mills were in operation?

A. Yes, sir.

Q. The line marked as coming through the new portal and down towards the tippie of the mill as the "main tram"; what is that?

A. That is a double track—part of our main line system from the mine—

Q. That is part of the double track railroad system leading from the mill to the mine; is that right? A. Yes, sir.

Q. Now, the little square near the sheds, between the sheds and the penstock marked "change room," what is that?

A. That is the No. 3 change room, where the men used to change, who live in town going up that way to work.

Q. From the change room at that time was there anything in the way of a trail leading downtown?

(Testimony of W. B. Hargraves.)

A. Yes, sir.

Q. Is that indicated on the map?

A. Yes, a parallel line.

Q. Those two little parallel lines that are marked "trail" is the trail that goes from the change room down towards town? A. Yes, sir. [408]

Q. Down the slope of the hill? A. Yes, sir.

Q. Now, on your map there is a trail marked "Trail to Harris Street," what is that?

A. That is a trail that goes to Second and Harris—that branches off from the other trail.

Q. Branches off from the other trail at the point indicated on the map? A. Yes, sir.

Q. And I think you have already said that what is marked "administration buildings" here, that is the concrete foundation that is on the hillside?

A. Yes, sir.

Q. Now, you have a legend here, "Gastineau transmission lines"—I wish you would explain to the jury what that represents.

A. The Gastineau transmission lines refer to these two lines, the one with the dash and three dots, and dash and two dots.

Q. Those are transmission lines belonging to what company?

A. The Alaska Gastineau Company. This one is the steel tower line and this one is the pole line.

Q. Which one is the pole line?

A. The one with the circle is the pole line; the steel tower line is the squares.

Q. What transmission lines are those—what are

(Testimony of W. B. Hargraves.)

they used for? A. Used for power transmission.

Q. Used for transmission of electric current?

A. Yes, sir.

Q. There is another similar line there called "Alaska Juneau transmission line"—what does that indicate?

A. That is the electric current for the Alaska Juneau and Treadwell purposes.

Q. That carries electric current for the Alaska Juneau and Treadwell Companies on a similar line with the Gastineau? A. Yes, sir. [409]

Q. Also an electric transmission line?

A. Yes, sir.

Q. Where do those lines run with reference to the slide area, when they come to the slide area?

A. They cross the slide area.

Q. In the slide area what, if anything, did the Gastineau Company have in the way of a tower?

A. They had a steel tower there.

Q. Had a steel tower—how is that indicated on your map?

A. Indicated by the same convention as the other towers except that it is dotted in.

Q. That little square dotted thing there a little below the word "area" in what is marked "slide area" is the steel tower of the Gastineau Company?

A. Yes, sir.

Q. That is where it stood? A. Yes, sir.

Q. Did the Alaska Juneau have any towers in this slide area? A. No, sir.

Q. None—that was the only tower of any of the

(Testimony of W. B. Hargraves.)

transmission lines that was in the slide area?

A. Yes, sir.

Q. Now, did these two lines, that is the Gastineau Company and the Alaska Juneau Company cross at any point? A. Yes.

Q. Where did they cross?

A. Where it is marked on the map "Transmission lines cross here."

Q. At the place where you have indicated on your map "Transmission lines cross here," that is where the two cross? A. Yes, sir.

Q. Which one crossed up above?

A. The Gastineau line.

Q. Crosses over the Alaska Juneau?

A. Yes, sir. [410]

Q. How far was that from where the slide happened? A. Oh, say about 400 feet.

Q. What is the distance between the steel towers of the Gastineau Company, Mr. Hargraves?

A. Why, they vary—250 feet, somewheres along there—250 feet to 300 feet.

Q. Somewhere in that neighborhood?

A. Yes, sir.

Q. How many poles were there between the pole that was situated in the slide area—I mean when I say pole, tower—the tower situated in the slide area and the point where the wires cross?

A. One.

Q. There was one steel tower of the Gastineau line between the place where the wires cross and the place where the slide occurred? A. Yes, sir.

(Testimony of W. B. Hargraves.)

Q. And the Gastineau people had that tower right in the middle of the slide area? A. Yes, sir.

Q. Now, do you know how those wires are fastened to the poles, or is that outside of your—

A. No, I know how they should be fastened, but I don't know how they are fastened.

Q. How should they be fastened?

A. They are carried along the insulators, and then the wire wrapped around the insulators and tapped to the insulators—the wires themselves are not wrapped around the insulators—they are just passed by the insulators, and fastened by other wires.

Q. Would the wires slip back and forth?

A. Yes.

Q. They are not fastened themselves to the insulators, but fastened by other wires?

A. They are only fastened where they make a turn—if they make [411] a sharp bend they might be fastened.

Q. But they are loose so they will slip back and forth? A. Yes, sir.

Q. That is what I am trying to get at.

A. Yes.

Q. Did you examine the point marked on the map “slide area”—what does that represent?

A. Represents a mass of ground that moved out.

Q. That is the place where the slide occurred on January 2d, 1920? A. Yes, sir.

Q. The lines shown on the map, what do they represent?

A. Those round lines represent contour lines.

(Testimony of W. B. Hargraves.) .

Q. What do those contour lines show, Mr. Hargraves?

A. They show a line of points of equal elevation on the ground. I think I could explain it best by saying, a trail that was on the same level passing along the hillside at a given elevation, either up or down, any dip in the ground or any bulge in the ground would have to wave along that line.

Q. Each contour line would represent a trail that is perfectly level? A. Perfectly level.

Q. If you have a trail along the line of any of those contour lines it would be a perfectly level trail? A. Yes.

Q. There would be no difference in elevation at all? A. No.

Q. So that each one of those contour lines lays out a perfect level along the side of the hill, and the wave along the contour line—

A. Would represent a depression or shows a bulge in the ground.

Q. Now, along the line where this trail runs down the hill from the penstock in the direction of what is marked "slide area," what exists on the ground there with reference to this matter of elevation?
[412]

A. There is a shoulder of high ground on either side?

Q. A hog-back? A. A hog-back, yes.

Q. What occurs at the point above there marked "gulch"?

(Testimony of W. B. Hargraves.)

A. There is quite a gulch comes in there all the way down the mountain.

Q. All the way down the mountain? A. Yes.

Q. And that gulch runs way up above your map?

A. Yes, sir.

Q. And comes down the side of the hill there?

A. Yes, sir.

Q. At the place marked "gulch"? A. Yes, sir.

Q. At the place on the other side is another legend marked "Portal Gulch," what is that?

A. That is another gulch coming down on that side.

Q. That also comes from way up the top of the mountain?

A. Runs way up the mountain—I don't know how far.

Q. Runs up the mountain above your map?

A. Yes.

Q. And extends down to Gastineau channel?

A. Yes, sir.

Q. In that direction? A. Yes, sir.

Q. Along the line of the words "Portal Gulch"?

A. Yes.

Q. Between those two gulches what is there?

A. Well, I would say there is high ground between them, higher than either one of the gulches—a hog-back.

Q. Is there anything else in the way of another gulch right down there?

A. Yes, sir; there is a small gulch comes down right at this end of the change house. [413]

(Testimony of W. B. Hargraves.)

Q. That is near the penstock?

A. Yes, sir, on the other side of the penstock.

Q. And that drains in what direction?

A. That drains into Portal Gulch.

Q. Now, between the penstock and the upper end of the slide area, what exists there?

A. There is a trail there.

Q. I mean with reference to elevation—that is where the hog-back extends?

A. The hog-back extends up there, yes.

Q. That is a high ridge leading down the hillside?

A. A ridge—I don't know as I would call it a high ridge.

Q. I mean when I say high ridge it is higher than the surrounding country? A. Yes.

Q. The ground is higher there than it is on either side of it? A. Yes.

Q. Where is the drainage of that ridge?

A. On either side.

Q. One side drains into one gulch and the other into the other gulch? A. Yes.

Q. Where is the natural drainage at the penstock from the point where the spout comes out of the penstock?

A. I have marked it on the map there "natural drainage."

Q. Along the line marked on the map "natural drainage"? A. Yes, sir.

Q. And that indicates the natural drainage from that spout to where?

A. Where it comes in to where the water of

(Testimony of W. B. Hargraves.)

Portal Gulch goes down to the other end of the administration building.

Q. Would drain down towards Portal Gulch, naturally, unless there was something, a body of sand or ice or something of that character to divert the water at the place where the spout is—where would the water go that comes from that spout *go* [414] if there were nothing to divert it?

A. Go along that drainage into Portal Gulch.

Q. What kind of a gulch is Portal Gulch?

A. It is quite a gulch.

Q. It is a natural drainage where the water from Portal Gulch runs? A. Yes, sir.

Q. And this little gulch runs almost along the line of what you have marked "Portal Gulch"?

A. Yes.

Q. The water would find its way into that?

A. Yes.

Q. You have a tram here marked "mill tram," what is that?

A. That is the tram that serves the mill from the wharf, to take up supplies.

Q. You can take them up to the upper level, also, from the street?

A. You can take them up to the mill from the street; you cannot take them up to the main tram from the street.

Q. Now, returning to these electric wire lines, the point at which the Gastineau and the Alaska Juneau wires cross, that is about where with reference to the Gastineau pole line?

(Testimony of W. B. Hargraves.)

A. It is right—

Q. I mean with reference to the Gastineau poles on either side of that point?

A. It is practically midway between the two of them.

Q. It is where the sag in the wire, if there is any sag, would be the greatest? A. Yes, sir.

Q. Do you remember the distance, Mr. Hargraves, between the wires at the point where they cross?

A. No, I don't.

Q. You don't remember that? A. No.

Q. Now, you have examined the slide area?

[415]

A. Yes, sir.

Q. That is the place marked "slide area," and that is the place where the slide occurred on January 2d, 1920? A. Yes, sir.

Q. When did you make an examination of that ground?

A. The 7th of January, 1920.

Q. That was the first time you were there?

A. I might have been there the day before, but I am not certain.

Q. You were also up to the penstock at that time?

A. Yes, sir.

A. When you were up there at the penstock did you make an examination of conditions around about there? A. Yes.

Q. Did you look there to see what course the water, if any, flowing from the spout had taken?

A. Yes, sir.

(Testimony of W. B. Hargraves.)

Q. Now, describe to the jury the exact condition that you found at the penstock with reference to that matter.

A. Well, where the water flowed down, it flowed down on this side of the ridge from the penstock—from the spout—instead of where it had always gone before, on the other side, the line of natural drainage.

Q. Speak a little louder.

A. As shown by the contour lines, there is only a slight hog-back here, and the water came down in here—flowed on this side instead of down here, where it had always gone before.

Q. That is, the water followed the line of natural drainage as indicated upon the map?

A. This time it did not—it came on this side of this small hog-back—ran on this side.

Q. And in what direction did it run?

A. Into the trail.

Q. Ran until it met the trail at what point?

A. Right in here. [416]

Q. At this first bend. Now, between that point where the water drained into the trail and the spout did you examine the ground?

A. Yes, sir.

Q. What did you find there in the way of evidences of running water?

A. Moss, grass, and debris was laid down—turned down the hill—that is, you could see that water had run over it.

Q. You could see that the water had run there by

(Testimony of W. B. Hargraves.)

the moss and grass and debris that was laying there?

A. Yes, sir.

Q. What was the condition of the grass on the hillside—what I mean, was it matted and bending over, or was it standing up straight?

A. It was bending down hill, the way the water flowed.

Q. Did you make a careful examination of that entire water course from that place where the water came from the spout to where it ran into the trail?

A. I made an examination—I wouldn't say it was a very careful examination—I looked at it.

Q. Explain to the jury how careful an examination you made. Did you look at it—look it over?

A. Yes; I wanted to see where the water came down on that side, and I could follow the water by the way the grass was turned down.

Q. Was there any cut whatsoever in the soil?

A. No, there was no cut.

Q. Was there any scour from the spout there?

A. No, sir.

Q. Where the water dropped from the spout was there any hole? A. No; no hole.

Q. Explain exactly what you saw.

A. The only evidence that I could see where the water came down, as I say, I could tell by the way the grass was turned down the hill along where the water flowed—that is all. There was no difference below the spout from the way it had [417] always been. There was no evidence of any water

(Testimony of W. B. Hargraves.)

coming from the spout, below the spout.

Q. Or any other point? A. No.

Q. Was there any evidence of any ditch 6 to 8 inches deep and from 18 to 20 inches wide?

A. No, sir.

Q. Was there any evidence of any such ditch there at all? A. Not that I saw.

Q. If there had been any evidence you would have seen it, wouldn't you?

A. I think so.

Q. You were there for that purpose, weren't you?

Mr. RODEN.—Don't argue with the witness—he said he didn't see it.

Q. What is your testimony, that you didn't see such a trench there, or that there was no such trench there?

A. There was no such trench that I saw.

Q. What is your answer, was there such a trench there, or would you have seen it if there had been one there?

Mr. RODEN.—We object to that question. Let him say what he saw, not what he would have seen if it had been there.

The COURT.—I think he may ask that—it is a usual question to ask.

Q. How is that, Mr. Hargraves?

A. Yes, if there had been a trench there I would have seen it.

Q. Couldn't have escaped you—you know just exactly what the conditions were and those were such as you have described to the jury?

(Testimony of W. B. Hargraves.)

A. Yes, sir.

Q. In the trail itself was there any evidence of wash?

A. The same evidence that I saw above there; the grass was laying over on the sides of the trail.

Q. I mean in the trail where the water had run?

A. I didn't notice anything different there than what was always in the trail that time of year.
[418]

Q. Was there any evidence of wash?

A. No, no evidence of wash in the trail. You mean abrasion of the trail? There was no evidence of that—no evidence of abrasion of the soil or ground of the trail. The trail was too hard for that.

Q. Were there any other places where you could trace or see that water had been running in the trail?

A. Yes; by the way the grass was lying over on the edges of the trail—the sides of the trail, you could see where the water had been running.

Q. At this place right above the slide was there any evidence that water had spilled out of the trail going over the slide area?

A. Yes, the same thing—the grass was lying over there.

Q. Was there any cutting or abrasion there at that point? A. No.

Q. Leading down towards the administration building, how did the trail look there?

A. I didn't notice that part of the trail.

Q. Didn't notice that part at all. All right.

(Testimony of W. B. Hargraves.)

Now, coming to the slide area, you made an examination of the slide area, I believe you said, on that day—have you made an examination of it since?

A. Made it on January 7th. Yes, I have been up there since, several times.

Q. You are familiar with the conditions around the slide area? A. Yes, sir.

Q. Now, your map shows a dotted space here marked "Koski," what does that mean?

A. That represents the position of the Koski house as it stood, as near as I could put it on the map from the information I had.

Q. That is where the Koski house stood before the slide? A. Before the slide, yes, sir. [419]

Q. Then there is the word "cut" just above that dotted space, what does that indicate?

A. Indicates a bank there where there had evidently been a cut made from evidences on the ground.

Q. Now, leading down from the Koski house there is a black square called "Bach," what does that indicate?

A. That indicates the position of the Bach house.

Q. That house is still on the ground?

A. Yes, sir.

Q. There is another house called "Oja" in a black square, what does that indicate?

A. That indicates the Oja house.

Q. There is another house marked "Kyander"?

A. That indicates the present position of one of the houses that was moved by the slide.

(Testimony of W. B. Hargraves.)

Q. Is that the original position occupied by it before the slide? A. No, sir.

Q. Where was it before the slide?

A. It joined that small house above the Oja house.

Q. Stood up in the vicinity of the Koski house?

A. Yes.

Q. What did the slide do to that house?

A. Carried it down the hill to that position—just moved it.

Q. Just moved it down the hill. To what extent did the slide hit it?

A. I imagine it just hit one corner of it.

Q. Just enough to move it off its foundation. There is a line marked there “Gastineau Avenue,” what does that indicate?

A. That indicates a portion of Gastineau Avenue below the slide—or Gold Street.

Q. The line marked “Franklin Street” indicates Front Street, doesn’t it? A. Yes. [420]

Q. The buildings between Gastineau Avenue and Front Street that you have indicated there, what do they indicate?

A. Indicates buildings as they were before the slide as near as I could get the information; and the real black ones, they were there at the time I surveyed the ground, with the exception of one—one has since been torn down.

Q. The two buildings in black lines, they were there at the time you made your survey?

A. Yes.

(Testimony of W. B. Hargraves.)

Q. When was that? A. May 21st.

Q. What is this little building above the black line? A. That is still there.

Q. Do you know what that was?

A. A little shack.

Q. What is the other one down below that?

A. It appears to be a series of shacks or apartments—a long row of buildings.

Q. That is one of Mr. Goldstein's apartment houses? A. So I understand.

Q. These buildings in the dotted lines, what do those indicate?

A. Indicate buildings that were there before the slide.

Q. Those were buildings that were there before the slide? A. Yes.

Q. How did the slide affect this little building?

A. As far as you can tell it didn't affect that at all.

Q. And it did affect the other one below the apartment house?

A. As near as I can tell, it moved it 3 or 4 feet. There is a big stump that holds the corner of it—that stump is still there—that protected the building.

Q. Was that building damaged very much?

A. Didn't appear to be.

Q. The other little building is still there?

A. Yes, the other little building is still there.

[421]

Q. And the others you have marked in dots, they

(Testimony of W. B. Hargraves.)

were demolished by the slide?

A. They were damaged considerably.

Q. The other in the black square down on Franklin Street, what does that represent?

A. That represents Mr. Goldstein's store building.

Q. That is the present store that is still on the ground? A. Yes, sir.

Q. What course did the water take from the Koski house down to Franklin Street?

A. Practically straight down.

Q. Came down the low land there? A. Yes.

Q. Did it come straight or make some bend?

A. I think it made some bend—bent to some extent.

Q. What direction did it bend—where did it bend?

A. Down here it seemed to take a turn like that and throw it out here—curve it out like that. This piece of high ground here kept it from going over there.

Q. It followed the gulch down the low land?

A. Yes, followed the lowest place.

Q. There are other buildings in this neighborhood, aren't there, Mr. Hargraves? A. Yes.

Q. They are not shown on the map?

A. No, sir.

Q. All you attempted to show was Mr. Goldstein's buildings on his lot between Gastineau Avenue and Front Street?

A. That was all I was asked to show.

(Testimony of W. B. Hargraves.)

Q. I mean you show no other buildings except Mr. Goldstein's? A. That is all.

Q. That is speaking between Gastineau Avenue and Front Street, these buildings that occur there are all on Mr. Goldstein's lots, and they are in issue in this case? [422]

A. Yes, sir; as far as I know.

Q. You know from your examination of the ground—you surveyed it?

A. Yes; those buildings, I know about those—there may be more that belong to him—I wouldn't know about that.

Q. There may have been some buildings on these lots that you didn't know of but these buildings were there?

A. Yes; those buildings were there.

Q. There may have been some additional small buildings there that were not drawn to your attention so that you did not put them on the map?

A. No.

Q. You would not testify that these are all the buildings on the lots? A. No.

Q. But you do testify that these buildings shown here were on the lots? A. Yes, sir.

Q. There is another little house here called the "Morgan house," that is still on the ground?

A. Yes, sir.

Q. That is on the ground still, and shown in a black line on your map? A. Yes, sir.

Q. Lot 2 block D, how is that indicated on your map?

(Testimony of W. B. Hargraves.)

A. There is a dash line, block 2, or lot 2 block N, I think it is.

Q. That is the Koski lot?

A. That is the lot the Koski house was on, yes, sir.

Q. What is the width of that lot?

A. Fifty feet.

Q. What is the width of the Koski house?

A. As near as I could find out it was about 45 feet.

Q. In the neighborhood of 45 feet?

A. Yes.

Q. There was originally another house just below the Koski house, [423] called the Larson house?

A. I believe so, yes.

Q. That isn't shown on your map? A. No.

Q. Now, as shown here by your map what was the depth of the cut behind the Koski house at its deepest point?

A. When we made the survey, that is all I could tell—about 10 or 12 feet, I should think.

Q. Ten or 12 feet, somewhere along there?

A. Yes.

Q. What was the width of the slide as compared with the width of the cut?

A. They were the same.

Q. At the Bach house side the cut was the deepest? A. Yes, sir.

Q. On that side how far did the slide come over towards the Bach house, with reference to the edge of the cut—the end of the cut?

(Testimony of W. B. Hargraves.)

A. It came right over to the side of the Bach house—to the Bach house practically.

Q. Where with reference to the cut behind the Koski house as the evidence showed upon the ground at that time?

A. Just over to the corner of the cut. The slide and the corner of the cut at that spot were identical.

Q. That is, the boundary of the slide and the boundary of the cut at that time were the same?

A. Yes, sir.

Q. That you, could see at the time you made your survey? A. Yes, sir.

Q. On the other side, the evidences of the cut, were they so plain?

A. No, not so plain because the gulch comes in there.

Q. And because of the gulch the evidences did not exist as to where the cut ended. How wide was the slide at the point [424] where the cut is?

A. It was about 45 feet.

Q. How wide is the Koski lot?

A. Fifty feet.

Q. Where did the slide come with reference to the position of the house on the ground?

A. Came right behind it.

Q. And how did the slide compare in width with the house on the ground? A. The same.

Q. The same width. Now, at about that same time or within that same rainy spell—you are familiar with this hillside looking along here?

A. Yes, sir.

(Testimony of W. B. Hargraves.)

Q. How is the character of the hill at this point where I am now pointing, near the stamp-mill, as compared with the hillside at the Koski house—I mean with reference to the soil conditions?

A. The same thing practically.

Q. At that time, about that same time and during that same wet spell, the early part of January, 1920, what, if anything, occurred in the region of where I am now pointing in the way of a land slide?

A. A slide occurred there.

Q. What occasioned that slide?

A. A cut in the hillside.

Q. Who made the cut?

A. The Alaska Juneau made the cut.

Q. For what purpose?

A. To put in a hoist foundation.

Q. At the point where I am now pointing?

A. Yes, sir.

Q. The word “cut,” referring now the place marked “slide area” near the point marked “50-stamp-mill,” and the word “cut” as [425] it is there, what does that represent?

A. Represents where we made the cut for that hoist.

Q. When was the cut made?

A. The cut was made in December of 1919.

Q. When did this slide occur?

A. January 5th or 6th—somewhere around there—1920.

Q. You would not be sure as to the exact date?

A. I don't know whether it was the 5th or 6th—

(Testimony of W. B. Hargraves.)

I am pretty sure it was either one of those days.

Q. Now, what was the width of this slide, the slide referred to as being near the 50-stamp-mill, as compared to the width of the cut?

A. The same.

Q. Identical? A. Yes, sir.

Q. Were there any other slides on the hillside anywhere else in that neighborhood at that time or any other time? A. Not that I know of.

Q. Were there any other cuts in that neighborhood? A. Not that I remember.

Q. Was there any cut on either side of this slide?

A. There was a small cut on the side towards the stamp-mill.

Q. Where is that?

A. Between there and the stamp-mill.

Q. I mean immediately on the side of this—

A. No.

Q. Where was this with reference to a gulch—was there any gulch in the neighborhood of that slide?

A. No, there is no gulch there. There is a gulch on each side, but there is no gulch there.

Q. What was the size of the slide at the stamp-mill to which I am now pointing, as compared to the slide behind the Koski house?

A. It is nearly twice as big. You can see—they are on the [426] same scale on the map—it shows their relative plan and size.

(Testimony of W. B. Hargraves.)

Q. The mass that moved was twice as large as the mass that moved behind the Koski house?

A. Yes, sir.

Q. Had you built any bulkheads where this slide occurred? A. No, sir.

Q. At the time of the slide? A. No, sir.

Q. Was the place ready to construct a bulkhead?

A. No; we were hoping to get our foundation in before we needed to construct a bulkhead. We had a bulkhead in mind but we thought the ground would hold until we got the bulkhead in.

Q. And while you were going to build a bulkhead, you didn't have it built yet? A. No, sir.

Q. The ground was open and that is what caused the slide? A. Yes, sir.

Q. Was there any water running over that—any flume line or anything of that kind, in that neighborhood?

A. No, sir, no streams there at all.

Q. No flume line there at all? A. No, sir.

Q. Now, Mr. Hargraves, have you made cross-sections of those two slides? A. I did.

Q. Have you made an examination of the slide on the hillside? A. Yes, sir.

Q. Are you familiar with the character of soil that covers the bedrock there? A. Yes, sir.

Q. What kind of soil is it?

A. It is matter from the hillside—it is mostly clay with angular fragments of rock in it?

Q. Some soil? [427] A. Yes.

Q. And decayed vegetable matter?

(Testimony of W. B. Hargraves.)

A. On the surface, yes—matter that would come from the sidehill there.

Q. That clay soil, does that readily absorb water, or not?

A. It does not absorb it readily, no.

Q. It does not absorb it readily—it is almost impervious? A. Almost so.

Q. Now, how does running water, water running in a stream,—if water should come down, for instance, from a place like this penstock, running over that soil mass there, how would that affect that kind of soil, as to whether it would soak in or run off?

A. Most of it would run off—very little would soak in.

Q. What would the water do upon the surface if it ran there for any length of time in any quantity?

A. The only thing it would do would be to cut a channel for itself.

Q. Suppose a stream the size of a sluice-head,—do you know what sluice-head means in general terms? A. Yes.

Q. Suppose a sluice-head of water were turned loose at the penstock there and ran down over that ridge for any considerable time, what effect would it have upon the soil?

A. I don't know what you mean by a considerable length of time.

Q. I mean three days, for instance.

A. I don't think three days would have very

(Testimony of W. B. Hargraves.)

much impression—a sluice-head is not such a very great amount of water.

Q. I mean the amount of water that would run through a 12-inch box?

A. Yes, I know—it wouldn't have much effect on the hillside. If it had any it would gradually cut through the moss and cut a channel for itself.

Q. Would it have the effect of soaking in and causing a landslide? A. No, sir.

Q. Where would it become evident, if it ran very long, with reference [428] to the lower side of the hill,—if a stream were turned loose at the penstock, how long would it be before you would know it on Franklin Street, for instance?

A. Well, I couldn't say—you would know it pretty soon—it wouldn't take such a very great length of time.

Q. By pretty soon what do you mean—how long—an hour or two? A. Know it before that.

Mr. RODEN.—That is entirely speculative.

The COURT.—That would depend on so many circumstances that you have not told him about.

Q. Do you know the conditions on that hillside running down there, Mr. Hargraves?

A. Yes, sir, I know the conditions.

Q. You know what the soil conditions are through there? A. Yes, sir.

Q. You know what the slope is? A. Yes, sir.

Q. What is the slope? A. About 30 degrees.

Q. About 30 degrees from the horizontal. Now, under those conditions approximately how long

(Testimony of W. B. Hargraves.)

would it take the water, if it were turned loose at the penstock—you say it would run down in a stream and cut a channel for itself?

A. Yes, it would cut a channel for itself.

Q. How long would it be before it would be evident on Front Street?

A. Not very long—a comparatively short time—I am unable to state just how long.

Q. Could it run two or three days without becoming evident on Front Street?

A. No, I don't think so, unless there was some channel for it to run into which wouldn't be evident on Front Street.

Q. It would reach the level of Front Street, I mean? A. Yes.

Q. How long would it take to reach the level of Front Street? A. A very short time.

(Whereupon court adjourned until 2 P. M.)
[429]

AFTERNOON SESSION.

March 28, 1921, 2 P. M.

W. B. HARGRAVES on the witness-stand.

Direct Examination (Cont'd).

(By Mr. HELLENTHAL.)

Q. Mr. Hargraves, I now call your attention to a photograph marked Plaintiff's Exhibit "E," and I will ask you to look at that and state whether that represents about the condition that you found on the ground at the time you were first at the penstock after the slide. A. Yes, sir, it does.

(Testimony of W. B. Hargraves.)

Q. That is about a correct representation?

A. Yes, sir.

Q. I now call your attention to another picture marked Exhibit "G" and ask you whether that is about a correct representation of the penstock and the conditions you saw around there after the slide?

A. Yes, sir.

Q. These pictures are taken at different angles?

A. Yes.

Q. I refer now to a picture marked Plaintiff's Exhibit "F," and ask whether that is about a correct representation of conditions as they were at that time? A. It is, yes.

Q. Referring now to Exhibit "M," is that picture about a correct representation of the trail as it was at the time you saw it?

A. That is a picture of the slide, Mr. Hellenthal.

Q. Referring now to a picture marked Exhibit "E," is that about a correct representation of the trail as you found it at that time?

A. Yes, sir, it is.

Q. With reference to wash conditions and things of that kind? A. Yes, sir.

Q. How does that compare with the trail as it looked before the slide? A. Just about the same.

[430]

Q. And about the same as it looks now?

A. Yes, sir.

Q. Have you looked at these other pictures of the trail here? A. I have.

Q. Are they correct representations of the trail

(Testimony of W. B. Hargraves.)
as it was when you went up there?

A. The time I went up there, at that time, January 7th, you mean?

Q. Yes.

A. Yes; there was more ice then than is shown there. The bed of the trail—the character of the boulders and rocks is just the same—practically the same.

Q. And whatever wash there was there is the same as shown on those pictures? A. Yes, sir.

Q. And the conditon is almost the same as it was before the slide? A. Yes, sir.

Q. What was the condition with reference to the ice at the time you went up there?

A. There was some ice on the trail—I don't remember whether it was wholly covered or not, but I remember there were patches of ice there.

Q. You remember the trail was more or less icy?

A. Yes.

Q. Now, Mr. Hargraves, there is another matter that I neglected to interrogate you about—at the time that you examined the slide what, if anything, did you find in the slide area in reference to portions of the Gastineau tower?

A. Why, there appeared to be parts of two legs of the tower still there.

Q. Which legs of the tower did you find?

A. As near as I could determine they are the upper legs.

Q. Were they still fast in the ground?

A. To all appearances they are.

(Testimony of W. B. Hargraves.)

Q. *They* is, they had never been broken up?

[431] A. Merely bent over.

Q. They were bent over but were still in the ground? A. Yes, sir.

Q. Now, you say you have made a cross-section of this slide area—directing your attention now to a blue-print of a map, I will ask you to state whether that is the cross-section you referred to? A. Yes.

Q. That is of the slide area directly behind the Koski house? A. Yes, sir.

Q. Does that correctly represent conditions there? A. Yes, sir.

Mr. HELLENTHAL.—I offer that in evidence.

Mr. RODEN.—No objection.

(Whereupon said blue-print was received in evidence and marked Defendant's Exhibit No. 6.)

Q. Now, referring to Exhibit No. 6, that shows the position of the tower upon the ground, does it not?

A. Yes, sir.

Q. That is the tower to which you have referred as the Gastineau tower? A. Yes, sir.

Q. Now, Mr. Hargraves, this tower that shows on the drawing, that is the Gastineau tower?

A. Yes, sir.

Q. And the upper legs, up the hillside, those are the legs that you found still in the ground?

A. I think they are.

Q. As near as you could determine?

A. Yes.

Q. Now, you have already testified, I think, as to where the other tower stood? A. Yes, sir.

(Testimony of W. B. Hargraves.)

Q. That is some 300 feet from here? [432]

A. Three hundred feet each way, about.

Q. Now, this shows the thickness of the slide mass—this mass right here?

A. Yes, as near as it can be determined.

Q. As near as it can be determined from the conditions on the ground at the present time. Now, at the point where it hit the tower how did that slide mass affect the position of the tower on the ground—what happened to the tower, or what would happen to the tower, if this mass began to move slowly?

A. The tower would move.

Q. In what direction, and how?

A. The dip would lean down the hill.

Q. The dip of it would be downhill until after these legs broke, is that right?

A. I should think so.

Q. Well, now, if the dip of the tower leaned down the hill what effect would it have upon the wires between the next section of poles?

A. If there was any power it would probably go in jumps—that is, it would go down the hill, bend and stop, and cause a vibration in the wires.

Q. The tower would be shoved downhill and then stop, and then what would happen to the tower?

A. It might move back a little bit—might not—might swing back a little but not back to its original position.

Q. If it swung that way what effect would that have on the wires in the next section?

A. Make them vibrate—oscillate.

(Testimony of W. B. Hargraves.)

Q. In what direction would it cause them to swing?

A. They might swing either way—the movement of the tower might cause them to move and they might vibrate upwards or downwards probably—sideways, probably—go in all ways.

Q. At any rate it would cause them to vibrate and move? A. Yes. [433]

Q. You have also made a cross-section of this other slide, I think you said,—before I refer to that, does this cross-section show the position of the Koski house on the ground?

A. Yes, as near as it could be determined from what data I had.

Q. How much of a bank was there behind the Koski house according to evidence you found upon the ground and the data which was supplied you?

A. The original surface there showed about 10 or 12 feet of bank—there was a cut—the bank was 10 or 12 feet higher than the back of the house at that time.

Q. That cut shows on your drawing at the point where I have my pointer, is that it? A. Yes.

Q. And the Koski house—

A. Is that dash line.

Q. Right shortly below the tower? A. Yes.

Q. And that place where the surface drops down shortly below the tower, that is the cut—what is shown on this map as the original surface?

A. The solid line with the cross hatching next to it represents the surface as it now is. This dash

(Testimony of W. B. Hargraves.)

line represents the surface as it was previous to the slide, as near as could be determined now.

Q. And the piece that lies between the dotted line and the solid line represents the pieces that slid? A. Material that was moved, yes.

Q. What was the depth of the material that was moved right above the cut behind the Koski house?

A. About four feet.

Q. About 4 feet deep—what was its depth up about the tower?

A. Oh, it ran up to probably 10 or 12 feet there.

Q. Where was this cross-section made with reference to the slide area—how far from the Bach house line? [434]

A. Oh, I can show on the map where that cross-section was taken.

Q. All right, come down here and show it on the map.

A. Along the line that I have drawn there.

Q. It would be a short distance below the Bach house line? A. Yes.

Q. And if the Koski excavation were higher at the Bach house side it would probably be a little higher than you have indicated? A. Yes.

Q. And the slide mass, how would the thickness of the slide mass compare there—be about the same? A. About the same.

Q. Now, directing your attention to another blue-print here, I will ask you what that is a blue-print of?

A. That represents a cross-section of the slide

(Testimony of W. B. Hargraves.)

that took place on our property over near the stamp mill.

Q. That is the slide that shows on your map as being a short distance to the north of the stamp-mill? A. Yes, sir.

Mr. HELLENTHAL.—I offer that in evidence.

Mr. RODEN.—No objection.

(Whereupon said cross-section was received in evidence and marked Defendant's Exhibit No. 7.)

Q. Are those maps on the same scale, Mr. Hargraves?

A. They are, Mr. Hellenthal, on the same scale.

Q. Now, does that Exhibit No. 7 show the cut that was made there? A. Yes.

Q. What was the depth of that cut?

A. Oh, that is about 25 feet, I should say.

Q. Now, what was the depth of the slide at the point of the cut?

A. About 5 feet—5 or 6 feet.

Q. What was the depth of the slide further up?

A. It is 10 feet above. [435]

Q. On that line also the solid line represents the ground as it now is, and the dotted line represents the original surface?

A. The same convention there as on the other one, yes.

Q. Both maps are made in the same manner?

A. Yes, sir.

Q. Now, Mr. Hargraves, is there any way that a geologist can determine whether a slide was caused by a cut—by an excavation, or whether it

(Testimony of W. B. Hargraves.)

was caused by a saturation of the ground to such an extent that the ground became mushy from the water?

A. Tell by the character of the break in the ground where the slide took place.

Q. That can be determined, then?

A. Can tell by looking at it, very easily.

Q. How were these slides that are shown upon the cross-sections of those two blue-prints that have been introduced in evidence—how were they produced—what was the cause of them?

A. I would say they were caused by cuts.

Q. Why do you say they were caused by cuts?

A. Because of the character of the break in the ground above there. The slide area around the edge of the slide broke as a single mass or whole mass.

Q. How can slides be caused—by what different causes?

A. Oh, they can be caused by making a cut, by disturbing the angle of rest that any material has.

Q. No matter how that is done?

A. No matter how it is done.

Q. Whether it is done by a tree falling over and making a hole, or a rock slipping out, or any other cause, it would be the same, is that right?

A. Yes, sir.

Q. Can a solid mass, such as you said this was when it was moved, can that be moved in any other way except a disturbance at the foot of it? [436]

A. No, there must have been some disturbance

(Testimony of W. B. Hargraves.)

at the bottom of the mass in order to have it slide. That disturbance may not have taken place right immediately previous to the time of the slide—it may have taken place a long time before, or just immediately before—the question of time is quite variable.

Q. But there must have been some kind of a place for it to slide to, is that the idea?

A. Yes, sir.

Q. How is this soil deposited on the hillsides?

A. Deposited by the action of gravity on the hillside of the rocks and weathered material up above, laid down in layers, and has its natural angle of repose—clay and weathered off angular fragments slide down the hill until they reach the angle of repose.

Q. What do you mean by angle of repose?

A. The angle of repose of any material is the natural slope that it takes when it is piled up anywhere,—that is, it is the natural slope of the surface of any material when it is piled up in a pile.

Q. It is the angle to which it will slide and at which point it will quit sliding, is that the idea?

A. That is exactly it, yes, sir.

Q. That is the angle of repose. Now, where a slide is created on a hillside—originally there is no slide on the hillsides, is there, Mr. Hargraves?

A. No.

Q. The hillsides are slopes of barren rock?

A. Barren rock.

(Testimony of W. B. Hargraves.)

Q. And the soil is deposited afterwards—where does that soil come from?

A. Comes from the upper portion of the hillside—the weathering of the rocks.

Q. The weathering of the rocks—the action of the elements up on the rocks? [437]

A. Yes, sir; admixture of air and water and frost.

Q. That causes the rock to break off and disintegrate and form soil? A. Yes, sir.

Q. What character of rock is it that underlies these mountains?

A. Along there it is greenstone.

Q. Is the greenstone there in massive form?

A. No, not what you would call massive—it is—

Q. Greenstone originally is a massive rock, isn't it? A. Yes.

Q. And the hillside here, what is it—is it formed of schist or is it still massive?

A. It is schisto character.

Q. By schisto character what do you mean—what is the rock when it becomes schist?

A. Rock which becomes schist is one which has been subjected to considerable pressure—pressure enough to—not change the chemical character of the rock to any extent but changes the structural character of the rock—it makes the crystals of the minerals that compose it lay in parallel directions—that is, those crystals lay in the same direction.

Q. Makes them lay in layers?

A. In layers.

(Testimony of W. B. Hargraves.) .

Q. Gives the rock the appearance of slate to some extent? A. Yes.

Q. Slate is formed how?

A. Slate is a fine grained sedimentary rock which is formed by the laying down of fine material in the ocean or lake bed and then that is cemented by pressure and heat.

Q. And that is laid that way, one layer on top of the other? A. On top of the other.

Q. And this greenstone, because of this pressure you speak of, takes on that appearance, is that right?

A. That is it. The difference between slate and schist rock, [438] as far as looking at it is concerned, it is about the same; but the schist is what we call a plutonic rock—that is, it has not been laid down by the weathering agencies that we have on the surface of the earth, whereas slate is composed of material that is weathered off—it has no crystalline form like the plutonic rocks have, but their physical character is very similar.

Q. Greenstone is originally sort of a volcanic flow, is it not? A. Yes, sir.

Q. And slate is generally down at the bottom of the water? A. Yes.

Q. And that is the character of rock that this hill-side is composed of, is that right? A. Yes, sir.

Q. Where that rock disintegrates—breaks up and forms soil, what kind of soil does it form?

A. The biggest part of it is clay, and of course that is mixed with angular fragments of rock which

(Testimony of W. B. Hargraves.)

have been broken off and weathered down to the size of clay—consistency of clay.

Q. And with that is mixed, I suppose, as time goes on, some of the decayed vegetation that falls on the mountain-side? A. Oh, yes.

Q. Now, Mr. Hargraves, how do you determine that these slides that you speak of there were caused by excavations at the foot and not by an admixture of water that went to the extent of causing a flood at the surface?

A. If it was due to a flood you would not have the break in the ground—the character of the slide—the cross-section would be different. You would have the same effect as taking a sand pile and taking a shovel and shoveling away from the bottom of the sand below—it would simply flow off gradually—it would not break away to any extent. You see in a sand pile there would be no cohesion among the particles—each particle would be free from the rest—but here it moves as one mass.
[439]

Q. What does this curved condition indicate with reference to that?

A. That simply shows that it did not have that flow—that a flood would not be the cause of it. If that admixture had been enough to cause a flood you would have had a section like this—instead of having any cut up here to amount to anything it would come down to more of a triangle there.

Q. What is it that the geologists term that curve?

(Testimony of W. B. Hargraves.)

A. Some of them call it a variation of the elastic curve, as laid down by Dr. Becker.

Q. Now, I wish you would explain that elastic curve to the jury—just what that indicates, why it indicates it, what it does indicate—that elastic curve is present in both of these cases, is it not, Mr. Hargraves?

A. There is evidence of it, yes—it is modified by local conditions.

Q. The elastic curve, however, its general form is present in both of these slides?

A. It is present anywhere where a cut is made in the bank.

Q. It is present anywhere where a cut is made in a bank, is that true? A. That is true.

Q. Is the elastic curve present if a slide occurs and is not due to a cut or excavation in the bank?

A. No, there is no elastic curve present unless you have a cut. The elastic curve is a line of tension and is present if no slide has occurred. Where there is a cut in the hillside the line of tension is there, although the slide may not have taken place yet.

Q. The moment a cut is made a tension sets up?

A. A tension sets up—there is a line of tension that stretches back to any point along the face of the cut. There are an infinite number of those lines of tension. [440]

Q. And when a slide occurs where does the slide occur with reference to that line of tension?

A. It occurs along that line of tension—one of

(Testimony of W. B. Hargraves.)

those lines of tension—one where the strength of the material is not enough to overcome the force.

Q. Now, then, what does the presence of the elastic curve show with reference to the cause of the slide?

A. It shows that there was a cut there—I didn't quite get that, Mr. Hellenthal.

Q. What does the presence of the elastic curve indicate with reference to the cause of the slide itself—does it show the cause of the slide?

A. It would indicate there was a cut there that caused the slide, yes, sir.

Q. It indicates there was a cut there and the slide was caused by the cut? A. Yes.

Q. By cut you mean any removal of the soil material at the bottom of the slide?

A. At the bottom of the slide, yes.

Q. Whether made by Koski or the Alaska Juneau Company or by a falling tree, or by any other cause? A. Yes.

Q. Any case where there was an excavation at the lower end of the slide mass, is that true?

A. Yes, sir.

Q. Now, Mr. Hargraves, if you have before you, as an engineer and geologist, a condition where the depth and angle of the cut is known, the angle of the hill behind it as well as the bed-rock conditions are known, the character of the soil and the moisture contained in it are determined by experiments, can you determine mathematically in advance where the slide will occur when it does

(Testimony of W. B. Hargraves.)

occur? A. It can be done, yes, sir. [441]

Q. If you had before you the evidence of the Koski cut, before this slide had happened, as well as the data concerning the bedrock above there, the character of the soil, and matters of that kind which I have indicated, on the slope of the hill, could you sit down before that slide happened and show just exactly where it would happen?

A. Well, I have never tried it but I think I could. I know it can be done.

Q. You know it can be done? A. Yes, sir.

Q. And a cross-sectional drawing could be made before the slide happened showing the conditions upon the ground as you now have indicated them after the slide?

A. If you knew all the factors, yes; it could be done.

Q. Just the same as they can foretell an eclipse of the sun, or some of the other—

A. Not with that degree of accuracy, because some of those factors could not be determined with that degree of accuracy.

Q. The mathematical work of it is just as accurate, is that not so?

A. Yes, sir; that has been proven.

Q. Simply the application of the law of gravitation. Now, Mr. Hargraves, when a cut is made in a hillside—a steep hillside, when an excavation is made, what is the immediate effect of it—what happens with reference to the mass lying above it?

(Testimony of W. B. Hargraves.)

A. The mass lying above it may slide at any time.

Q. What happens?

A. The action of gravity, while it is acting on that mass at all times, it has a chance to work now because one of the supports of that mass has been taken away—the main support of it.

Q. And that action commences at once upon the making of the cut? A. Yes.

Q. Now, what is the action, or how does the pull of gravity work—in one direction, two directions, or more directions, upon a [442] mass like that?

A. You make a cut, and any point on the face of the cut—take a point like this at this place, the pull this way out into the cut, the stress on it that way, is due to the product of the density and the depth—the product of the cut at that time—and the stress in this way sets up the line of tension, which is the elastic curve, and it comes to the surface along that mathematical curve—it has been demonstrated.

Q. That has been fully demonstrated more especially in the Panama Canal slides?

A. Yes. The strength of the material at any one of these points is less than the tendency of the cut to slide, and it slides at that point. That is the simplest way of explaining it.

Q. How do these slides come—do they come rapidly or slowly? A. They start very slowly.

Q. In a mass like that, even after it moves so

(Testimony of W. B. Hargraves.)

that it could be determined by delicate instruments that it was moving, how long would it then be before it would come down—before it would precipitate itself down the hillside? I am not asking you to tell me in hours or minutes, but relatively speaking would it take a long or a short time?

A. It would be a comparatively long time—it would be a matter of hours rather than a matter of minutes, I should say.

Q. Now, where a cut is made in a hillside of that character and no bulkhead is put in to hold the mass in place, what will the inevitable result be, if any?

A. It will move out sometime if that condition arises—the strength of the material is less than the tendency to move it out due to its weight and the depth of the cut.

Q. And whenever that happens it is coming down?

A. It is going to come down then, yes.

Q. Sooner or later it will come, is that the idea?

A. When that condition is set up.

Q. That condition will sooner or later occur, will it not? [443]

A. Yes, sir; depends on the material—in rock it would take a long while.

Q. Even if it were solid rock it would happen, would it not? A. Yes, sir.

Q. Solid rock would take a long time while loose material would take a short time, is that right?

(Testimony of W. B. Hargraves.)

A. Yes, sir; in loose material—loose material would not have that character, any way.

Q. I am speaking of soil—I do not mean sand, but soil—that is right, isn't it?

A. Yes, sir.

Mr. HELLENTHAL.—You may cross-examine.

Cross-examination.

(By Mr. RODEN.)

Q. Now, Mr. Hargraves, you say that this dirt would move rather slowly—that is, it would be a matter of hours rather than of minutes?

A. Yes, sir.

Q. And if this tower was situated where it is shown in this case, the tower was located in the slide mass, wasn't it? A. Yes, sir.

Q. That would move very slowly then, too, wouldn't it?

A. It would move slowly to start with, yes.

Q. And the wires would vibrate very slowly indeed, wouldn't they?

A. Oh, no; the vibration of the wires has nothing to do with the movement of the tower.

Q. Do you mean to say if this is the tower here and I jerk it this way that the wires would not move any?

A. You can demonstrate that.

Q. Answer yes or no—would the wires move the same?

A. No, they would not move the same.

Q. No, of course not. And if the wires would part between the two towers that parting would

(Testimony of W. B. Hargraves.)

not be caused, certainly, by a rather slow movement, would it? [444]

A. I don't understand what you mean by parting, Mr. Roden.

Q. Breaking. A. Breaking?

Q. Yes.

A. Would be caused by them moving slowly?

Q. Yes.

A. If it moved far enough they would probably break, no matter whether it moved slow or fast.

Q. A sudden break would not occur, though, the wires would stretch and then become taut—they would have to become taut before they could break, wouldn't they?

A. Yes, but you would have a vibration of those wires.

Q. And the more taut they became the less vibration there would be? A. No.

Q. But the size of the vibration would become very much less? A. Oh, no.

Q. Do you want to tell me as a scientist, now, Mr. Hargraves—you are a learned man—that the more taut a wire becomes the larger the vibration gets?

A. You are talking about this condition here?

Q. I am talking about conditions generally now.

A. What kind of wire do you refer to?

Q. Any kind of a wire. You know what is meant by the wave of vibrations, don't you?

A. Yes, sir.

Q. All right. Now, let's take a practical exam-

(Testimony of W. B. Hargraves.)

ple. You have seen steel wires on a violin, haven't you? A. Yes.

Q. Are you acquainted with the strings of the violin? A. Some.

Q. You know the E string on the violin, do you?

A. No, I don't.

Q. By stretching the bow across it it gives the highest sound. When a man tunes up his violin he tightens up the strings [445] to make the strings give a higher pitch, doesn't he? A. Yes.

Q. And the more he tightens them up the larger will be the vibrations of those strings, isn't that true?

A. I don't know whether they would be larger or smaller.

Q. When he touches that string with his bow or finger it vibrates, doesn't it—that is what causes the sound? A. Sure.

Q. And the higher the sound the greater the number of vibrations of that string, isn't that true?

A. I think so, if I remember rightly. It is a long time ago that I had that.

Q. The organ that shakes the college or the church, it has long deep notes which vibrate slowly, but the wave vibrations are very large and throw it around the building, and that is the cause of the windows rattling, isn't it?

A. Doesn't the length of the string and the length of the bow have something to do with the noise?

Q. And the high notes, they don't make the windows rattle, do they?

(Testimony of W. B. Hargraves.)

A. I couldn't say that—I don't know.

Q. The vibrations in the high strings—you know the number of vibrations in those lower notes, practically speaking? You have studied sound, haven't you—you have attended a technical school?

A. Yes, but I say that was a long while ago.

Q. You remember when you went to school that that string on that instrument, the sound before it becomes a sound, must have at least 18 vibrations per second—do you remember that?

A. No, I don't remember that.

Q. Well, then, the higher the sound gets the more vibrations? A. I think that is so.

Q. And the sound waves get very much smaller but they are much more frequent, isn't that true? You have seen the charts of sound, haven't you, when you were at school? A. Yes. [446]

Q. Where they have those waves, and where they show those deep low notes? A. One long wave.

Q. And the same thing applies to a wire, doesn't it? A. Sure.

Q. So the vibrations, the greater the tension, the more the wire becomes stretched, the greater the number of vibrations but the size of the vibrations becomes very small, isn't that true?

A. That may be true.

Q. Sure. So if these wires break here, or the tower was torn out of its position and the strain had come on it the vibrations would be comparatively short but rapid?

A. Not on that length of wire.

(Testimony of W. B. Hargraves.)

Q. Not on that length of wire—the length hasn't anything to do with it, has it? A. Sure.

Q. How could the length make any difference?

A. Because that wire has got a sag in it, which would have a big vibration in that.

Q. But when you stretch that to the breaking point there is not much sag left then, is there?

A. There isn't much left then.

Q. There isn't any, practically speaking, is there?

A. All right—there isn't any.

Q. There couldn't be any because it couldn't break if there was a sag in it?

A. Oh, yes; you cannot stretch a wire absolutely horizontal—there is always a sag there.

Q. You stretch it before you break it. Now, then, you want to tell this Court and jury, do you, Mr. Hargraves, that you can sit down now and I will tell you the cut behind somebody's buildings here in town, and that you can tell them exactly where the slide is going to happen?

A. I didn't say I could sit down now and do it; but I could do it [447] if you would give me all the factors in it.

Q. How long since you investigated this cut up where the slide happened?

A. The first time I was up there, the 7th of January, 1920.

Q. And the last time?

A. I was up there yesterday for the last time.

Q. There is quite a cut there now, isn't there?

A. Quite a cut, yes.

(Testimony of W. B. Hargraves.)

Q. How deep is that cut?

A. I should say 8 to 10 feet.

O. Is that all? A. I think so; yes.

Q. All right. The elastic curve is present there, too, isn't it? A. Yes, sir.

Q. Where is that going to break the next time?

A. That depends on the factors in the case. The material is not homogenous and you cannot tell—

Q. That cut is here, now, practically speaking, isn't it?

Q. Yes, that is where the ground is broken away.

Q. Yes, and it stands up there quite steep now, doesn't it? A. Yes.

Q. And the elastic curve is present?

A. Yes, sir; from there back.

Q. Can you give the jury any idea where it is going to break the next time?

A. I can give an idea on the cross-section here.

Q. All right, let's see where that is going to break the next time.

A. If it breaks it will break down like that.

Q. And if it breaks further off, the whole works will come down, off here, wouldn't they?

A. If it breaks back far enough.

Q. Eventually they will, sure. Is that why all these works here were moved, to prevent the elastic curve from having any effect on them? [448]

A. No, sir.

Q. That isn't the same there now as it was on

(Testimony of W. B. Hargraves.)

the 2d of January, is it—that is, the places are not the same? A. No, sir.

Q. When was the change made?

A. It was made in 1920.

Q. Well, the slide was in 1920, too?

A. That was made subsequent to the slide.

Q. And where are these works located now that were up here?

A. The pipe-line starts here and comes to here, like that.

Q. Where is the trommel located now?

A. The trommel isn't there any more.

Q. Don't use any?

A. No, sir; use a flat screen.

Q. You use a flat screen now?

A. Yes—several of them.

Q. And the discharge from the penstock—

A. We haven't any penstock now, Mr. Roden.

Q. Haven't any penstock now any more? This map is as it was on January 2, 1920, Mr. Hargraves, is it? A. Yes, sir; I think so.

Q. You are positive about that?

A. As far as I know. I didn't make it on the 2d of January so I couldn't say.

Q. No, but you tried your best to get things as they were on the 2d day of January?

A. Yes, sir.

Q. Was the Kyander house laying down here on the 2d day of January?

A. That I couldn't tell you—it was there on the 31st of May, when I platted it in.

(Testimony of W. B. Hargraves.)

Q. But I am asking you—you are trying to get things as nearly as you can, the way they existed on the 2d of January. A. Yes, sir. [449]

Q. Do you know whether on the 2d day of January the Kyander house wasn't down here?

A. I don't know—I think it was down there.

Q. From the way it looks. You told us on your direct examination that this house was up against the bridge, didn't you? A. Yes.

Q. It had been shoved down? A. Yes.

Q. It was shoved down by the slide, wasn't it? A. Yes.

Q. Why didn't you put it where it was on the 2d day of January?

A. Because that is still there—the Koski house is not there.

Q. There are a lot of other things still there that you put on—the Bach house is where it was?

A. The Bach house is where it was.

Q. It wouldn't be in the slide, would it, because the Koski house occupied the whole slide?

A. The Kyander house was there.

Q. Inside of the slide area?

A. It was in front of the slide area.

Q. It moved itself down?

A. No, the Koski house took it down.

Q. It walked down?

A. If it had been moved by the slide it would have demolished the house—if the slide had been behind it.

Q. This pipe-line here, you say that is open—

(Testimony of W. B. Hargraves.)

did you say that? A. Yes, sir.

Q. What does this represent down here on this pipe-line—what is that?

A. That is a 20-inch valve.

Q. That is in the pipe-line, isn't it?

A. Yes, sir.

Q. What is it put in there for?

A. To shut off the water when it is to be shut off.

[450]

Q. Then you don't know, as a matter of fact, whether the pipe-line was open or not?

A. No—it was supposed to be open—it was chained and locked.

Q. You don't know that it was open—you are guessing at it?

A. It is like a good many of these things—I don't know them personally, I know them—

Q. You have seen a good many cuts on these sidehills within the limits we are talking about, within the city of Juneau, haven't you?

A. I have seen some of them, yes, sir.

Q. Do you know how big this cut is that the Alaska Juneau has behind the administration building—do you know how long that is?

A. About the length of the administration building.

Q. How long is that? A. About 125 feet.

Q. How high does that cut extend up?

A. About 10 feet. That cut has a retaining wall in itself.

Q. That cut has a retaining wall in itself?

(Testimony of W. B. Hargraves.)

A. Yes, sir.

Q. Where the Koski cut did not? A. No.

Q. Is there anything put in here to make it act as a retaining wall?

A. The material has sloughed down there and holds that up.

Q. Is there anything back behind the administration building to act as a retaining wall?

A. It acts as its own retaining wall.

Q. I am asking you if there is anything behind the administration building to act as a retaining wall? Answer that yes or no.

A. There is no space between that and the hillside.

Q. There is no space?

A. Yes, sir—there is no space.

Q. Do you want to tell this Court and jury that there is no space between where that cut is back of the administration [451] building and the hill?

A. At the top of the wall there is, but the top of the wall is way above the sidehill.

Q. How much is the top of the wall above the hillside? A. Quite a bit above it.

Q. Is it? A. Yes, sir.

Q. You are as positive of that as you are of everything else, are you? A. Yes.

Q. You better go down there and take a look again. A. All right.

Q. The elastic curve is present there, too, isn't it?

A. Yes.

(Testimony of W. B. Hargraves.)

Q. Where is that slide going to happen?

A. The administration building supports it.

Q. Here is the sidehill back of the administration building, here comes your wall and your administration building straight up, now this cut here is a protection to the administration building, is it?

A. No, the administration building keeps that hillside from coming in there.

Q. It does? A. Certainly.

Q. Then why didn't the Koski building?

A. The Koski building was a little bit away from the cut.

Q. But the administration building is plumb up against it, is it? A. It is now, yes.

Q. Are you acquainted with the cut behind the hospital back there?

A. No, I am not, Mr. Roden.

Q. You have pretty good eyesight, haven't you?

A. Yes, sir.

Q. Come over here and take a look—do you see the cut back there? A. Yes, sir. [452]

Q. Is that up against the building, too?

A. No, it looks like it was this side of the building.

Q. Isn't it right back of the building?

A. I don't know.

Q. Don't quibble about it—you can see it is behind the building, isn't it?

A. All right, it is behind the building.

Q. And the elastic curve is present too, isn't it?

A. Yes, sir.

(Testimony of W. B. Hargraves.)

Q. Where is that going to break off up there?

A. I have an idea about how far it would go back to.

Q. Where? A. Back of the building.

Q. How far back?

A. Depends on the character of the ground and the slope of the hill.

Q. There are a good many places in the same condition on the hillside.

A. They must have retaining walls or something like that behind them.

Q. The hospital hasn't one, has it?

A. No; they are taking quite a chance.

Q. Are you acquainted with the Russell house up on the hill? A. No, I am not.

Q. Come here and see it. They dug into the hill where they put their foundation? A. Yes, sure.

Q. And the elastic curve was present there, too?

A. Wherever you make a cut it is present.

Q. Wasn't that the cause of this slide?

A. It might be a contributing cause.

Q. That would be the fault of the Alaska Juneau Gold Mining Company then. Do you want us to understand, Mr. Hargraves, that you or any human being on earth could tell where a slide would come as definitely as an astronomer can foretell the occurrence [453] of an eclipse?

A. No, I said I could not.

Q. Let me finish—where those sidehills are going to leak after a man makes a little cut in the bank?

A. No, you cannot unless you know all the fac-

(Testimony of W. B. Hargraves.)

tors, and a man cannot know all the factors.

Q. Then you want to modify the answer you made on your direct examination?

A. What answer did I make?

Q. You cannot tell us that, by working with a piece of paper and pencil, the same as an astronomer can foretell an eclipse of the moon?

A. Certainly you can if you know all the factors the same as the astronomer knows about the eclipse of the moon.

Q. You went up there on the 7th day of January, that was five days after the slide?

A. Five days after the slide.

Q. You didn't see any evidence of any abrasions or cutting by the water at all, did you, above the slide, and you went over it carefully, didn't you?

A. I went over it, I won't say how carefully.

Q. You went there for the very purpose of making an investigation?

A. No; when I went up there I went up with Mr. Pond when he took the pictures—that was the main reason I went up—with Mr. Pond to take the pictures.

Q. You told him where to take the pictures?

A. I suggested the places to take the pictures.

Q. Sure, you suggested the places to take the the pictures naturally, and you didn't see any wearing of the water along here, from the top of the slide to the penstock?

A. The trail was clean, that was all.

Q. I mean when I am talking about the trail—

(Testimony of W. B. Hargraves.)

you couldn't have been on the trail all the time,—as a matter of fact if you went from here up to there, the trail doesn't reach up anywhere [454] from here to the top of the slide—you went over the head of the slide to the penstock and you didn't see any wear on the trail?

A. Wear on the trail?

Q. Yes.

A. Only the ordinary wear on the trail caused from walking on it.

Q. You didn't see any considerable cutting right in here, did you, cutting in the ground right at the head of the slide? A. No.

Q. You would have seen that, too, if it had been there, wouldn't you?

A. I would have seen it if it was there.

Q. Now, that penstock, do I understand you to say that it cannot overflow?

A. Yes, the penstock cannot overflow—the screen can.

Q. The screen can overflow? A. Yes, sir.

Q. Where is the screen with reference to this penstock building?

A. The screen is in the penstock building—it is on top of the penstock.

Q. The screen is part of the penstock itself—inside of the penstock, isn't it?

A. No, it is on top of the penstock.

Q. That penstock was about 12 feet high, wasn't it? A. Yes.

Q. And on top of it was a screen? A. Yes.

(Testimony of W. B. Hargraves.)

Q. On top of the roof?

A. No, not on top of the roof. What we call a penstock proper is the lower part,—it really isn't a penstock, either.

Q. The screen is in the penstock building, is it?

A. Exactly.

Q. And when the screen overflows the water comes out of the penstock, doesn't it? [455]

A. No, it comes out of the screen.

Q. It comes out of the penstock building, doesn't it, Mr. Hargraves?

A. Yes, it comes out of the penstock building.

Q. We will say, to understand each other, that the penstock building overflowed.

A. The penstock building did not overflow. The water overflowed the screen, out of that building.

Q. All right, the water came out of the penstock building. A. Yes, under certain conditions.

Q. And it did, didn't it?

A. So I have been told.

Q. This water out of this penstock couldn't possibly go anywhere else except down here, what you have called the natural drainage?

A. Oh, no, I think, as I said this morning—it came the other way on that morning.

Q. On this occasion the water took another course?

A. The conditions that existed made it go that way—it wouldn't take but very little to divert it—ice or snow.

Q. According to your contour lines it would be

(Testimony of W. B. Hargraves.)

impossible for this water to come over the hill wouldn't it? A. Oh, no.

Q. These contours here are all high points, aren't they? A. It came here and on down here.

Q. Then how did it go? A. Right in here.

Q. And it didn't follow the natural drainage at all?

A. It didn't follow the drainage it generally had before, no.

Q. And according to your contour lines it couldn't get there, could it?

A. It could get there if there was any debris or ice and snow there.

Q. In other words, it would run in the highest places if the ice and snow made it go there, is that the idea.

A. Sure—it would go anywhere if there was anything to make it go. [456]

Q. But the other natural conditions would prevent it from going there?

A. Generally goes the other way—that is all I know about it.

Q. It didn't on this day, did it? A. No.

Q. Was that the only day it didn't go the other way? A. I couldn't say that.

Q. Now, Mr. Hargraves, where a cut is made in a sidehill such as we have been talking about, where is the weak point—where is the pressure the greatest?

A. The greatest pressure is at the bottom of the cut.

(Testimony of W. B. Hargraves.)

Q. For instance it would be here?

A. Yes, sir.

Q. And that is where it was with this slide here?

A. Yes.

Q. And that is where it began to move?

A. Not necessarily at the bottom of the cut; no.

Q. It wouldn't move at the strong point, would it?

A. There is a pressure all the way down—all points along the depth of the cut. It will move when that pressure overcomes the strength of the material. If the material is stronger there at the bottom it don't break there.

Q. I am not very scientifically trained, Mr. Hargraves, but still I know that a thing usually breaks at its weakest point, don't it?

A. At its weakest point, yes, sir.

Q. And so under all natural conditions this slide mass would break away at the weakest point in its area?

A. The weakest point, yes.

Q. And that would be at the foot?

A. Not necessarily at the foot, no.

Q. But that is the weakest point, isn't it?

A. That isn't the weakest point.

Q. Didn't you tell me a moment ago that the weakest point was at [457] the foot of the cut.

A. No, I said the greatest strain was at the foot of the cut.

Q. That is where the weakest point is, isn't it?

A. Not necessarily.

Q. If it is of the same strength it would break there?

A. If it was homogenous, yes.

(Testimony of W. B. Hargraves.)

Q. In other words, if I put a beam across here, the weakest point would be where—in the center?

A. The beam has the same strain throughout. If you put a load on it, that is where it would probably break.

Q. The beam would break in the center?

A. If the beam was homogenous—

Q. If the beam was rotten it would break in the weak point? A. Yes.

Q. But I am talking about a good beam—that sidehill is about the same all over, isn't it?

A. No.

Q. What is the difference?

A. Those sidehills have been deposited throughout a great length of time and at different times. There are different layers of material—some a lot coarser, some a lot finer—it is not homogenous at all.

Q. Oh, you want the Court and jury and everybody else to understand that this little cut down here was the cause of that slide?

A. In my opinion it was, Mr. Roden.

Q. Might have been?

A. In my opinion it was the cause of the slide.

Q. You have heard the testimony in this case pretty well, haven't you, Mr. Hargraves?

A. I haven't heard any in this case, no, sir.

Q. Well, the fact that the ground broke away down here above the tower wouldn't prove anything to you at all, would it, with reference to the cut here—the cut would still be the cause of it? [458]

(Testimony of W. B. Hargraves.)

A. Certainly—that is where you would see the first movement, would be up at the cut.

Q. Have you ever seen a cut in your life that caved in? A. The bank caved in.

Q. That didn't cave in right at its bank—right at its face? A. Certainly, it will cave anywhere.

Q. Certainly, invariably.

A. That is a different action than this case here.

Q. That is the way it is at your administration building, now, isn't it—the dirt breaks off and breaks off? A. Certainly.

Q. And if there is a little snowslide up a couple of thousand feet I suppose this little cut causes that snowslide? A. No, I didn't say that.

Q. You say this pipe-line can carry twice as much water as the flume?

A. As the ditch in No. 3 tunnel, yes, sir.

Q. What about the ditch in other places?

A. The flume beyond No. 3 tunnel can carry more water than that if it is in good shape.

Q. Then a big flume would carry a big volume of water further up towards the source, and then it begins to get smaller as they begin to get near the place where they need to use it, is that the idea?

A. No; there is only so much water can flow through that ditch through No. 3 tunnel, regardless of what the volume was up at the other end.

Q. What was the idea of putting in such a big pipe?

A. The pipe will take care of our water for some time if we enlarge the tunnel.

(Testimony of W. B. Hargraves.)

Q. The flume will take care of that water, too, for a long time? A. Yes.

Q. Would you call that a good engineering job to put in a pipe-line that will carry more water than you have got? [459]

A. I wasn't here when that was put in.

Q. How long have you been here?

A. I have been working for the company since the fall of 1918.

Q. Would you consider it good engineering to put in an extensive pipe-line carrying twice as much water as you can possibly get into it?

A. Not under ordinary conditions; no.

Q. That soil up on the hill is pretty nearly all clay? A. Large portions of it is clay.

Q. And broken rock?

A. Small fragments of rock.

Q. That is what all those trees grow in, that clay and broken up rock? A. Grow in that, yes.

Q. Trees grow very fine in clay, don't they?

A. They grow in that character of soil.

Q. I am talking about clay—I am not talking about character of soil—I am asking you if trees will grow in clay?

A. I'm sure I couldn't tell you—maybe not.

Q. You know, don't you, that they do not grow in clay? A. Maybe they don't—I couldn't tell you.

Q. Nothing grows in clay, does it?

A. I don't see why not?

Q. Have you ever seen a clay field that anybody can grow anything on?

(Testimony of W. B. Hargraves.)

A. Yes; I have seen a clay field in Northern Ontario hundred of miles wide and hundreds of miles long with a growth of years on it.

Q. Yes, loam—that is the same here as you saw in Northern Ontario—you find big trees growing here now, don't you? A. Yes.

Q. Stumps 3 feet thick, and they grow in clay and rock. Isn't it a fact that the vegetation and material that you find down there now is what is sometimes called leaf mold? [460]

A. Certainly—leaf mold on top.

Q. That is soil, isn't it?

A. Soil may be termed that, too.

Q. It is loam.

A. Loam might be called leaf mold.

Q. It isn't clay, is it?

A. No, I don't call loam clay.

Q. Is that hillside shattered in through there, or is it solid?

A. I don't quite get what you mean, Mr. Roden.

Q. The formation, is it even, or are there interstices, as they are called—openings—any of them present there?

A. Present up where bedrock shows.

Q. Interstices in there? A. Yes.

Q. They are always, so to speak, on the bedrock?

A. How is that?

Q. These openings, these interstices, are always on the bedrock?

A. Not necessarily always—they may break along

(Testimony of W. B. Hargraves.)

the joint planes of the rock—they may not always—they may cross each other.

Q. They may cross each other, yes—what causes that? A. A movement has taken place.

Q. Yes, a movement has taken place—that is what I want. Now, you made all your examinations for the preparation of this plat, when?

A. I made the main part of them in the end of May and middle of June.

Q. 1920? A. 1920.

Q. And the pictures you took on the 7th day of January?

A. 7th day of January—I didn't take them—Mr. Pond took them.

Q. He took them in your presence?

A. He took them in my presence, yes, sir.

Q. They were taken at your instance, were they?
[461] A. Not at my instance.

Q. They were taken at the instance of the company, but you were acting for the company?

A. Yes; I merely went along to show him the way.

Q. Do you remember the climatic conditions as they existed on the 2d day of January and the day or two before, that is with reference to rain and snow—did it rain any on that day?

A. The 2d of January?

Q. Yes.

A. I know in the morning of the first day of January it was raining pretty hard, and snowing some.

Q. How was it on the second, do you remember?

A. On the second I was not here.

(Testimony of W. B. Hargraves.)

Q. You were out of town then? A. Yes, sir.

Q. Did the same condition continue for several days up to the time you took the pictures?

A. I don't know; I either came back on the 4th or the 5th, and as I remember it—I know the time we took the pictures it was raining quite hard.

Q. How was it in comparison with the rain on the first of January—about the same?

A. I think it was a heavier rain.

Q. Much heavier or just a little heavier?

A. All I know about the 1st of January is, as I say, early in the morning, going down the bay—I went out on a boat.

Q. On the 1st it didn't rain any harder than you have seen it rain here lots of times, did it?

A. Oh, I don't think so, no; it was a pretty hard rain—around the 7th it was an extra heavy rain.

Q. And that is when you took those pictures?

A. Yes, sir.

Q. You came back on the 4th, did you?

A. It was either the evening of the 4th or the evening of the [462] 5th, I don't know which.

Q. On ordinary rains those snowsheds don't throw much water, do they? A. No.

Q. But when it rains heavily they throw a little water? A. Yes, quite a little water.

Q. This was taken on the 7th day of January?

A. It was.

Q. And it was raining pretty heavily, wasn't it?

A. It was.

Q. It wasn't raining extraordinarily heavy at that

(Testimony of W. B. Hargraves.)

time? A. I would say it was a pretty heavy rain.

Q. You wouldn't say it was raining extraordinarily heavy? A. It was raining—

Q. Don't know that on the 7th day of January we had the biggest rainfall we have had in the town of Juneau in twenty years save and except on the 26th of September, 1918, when the flood occurred down on Gold Creek?

A. I don't know that, but it may be so.

Q. But it was an extraordinarily heavy rain when you took those pictures?

A. It was a very heavy rain when we took those pictures.

Q. And this picture here, Defendant's Exhibit 5, shows the water coming over the snowsheds, doesn't it? A. Yes.

Q. That was taken the 7th day of January?

A. That was at the same time.

Q. And you think that that is the way it would look to a man standing down on the Pacific Coast dock if he saw any water come over there; is that it?

A. That is where the picture was taken—from the Pacific Coast dock.

Q. All right—that is the way it showed on January 7th?

A. That is the way it showed on January 7th.
[463]

Q. During a heavy rain. All right. Now, if on January 2d it was just a day of ordinary rain the snowsheds would practically throw no water, would

(Testimony of W. B. Hargraves.)

they? A. It depends on other conditions.

Q. What are the other conditions?

A. If it was a time of melting snow that would have some effect on it.

Q. Oh, yes, but under ordinary conditions it wouldn't show much water, would it?

A. If there was no snow there it wouldn't show a great deal of water.

Q. And the way it looks to you in that picture, do you want to tell us that a man seeing water coming out of that penstock on the 2d day of January would probably be mistaken and that he probably saw the water coming over the snowsheds over here instead of over there?

A. No, I didn't say that, Mr. Roden.

Q. No, but what is the purpose—what did you take this picture for?

A. To show the water coming over the snowsheds—to show the slide, that is what that picture was taken for.

Q. What was this picture taken for?

A. That was to show water coming over the snowshed.

Q. And every one of them was taken to show that these people were probably mistaken?

A. That is up to you—that part of it.

Q. So the man himself who helped build the penstock might have seen the water coming out over the snowsheds and really believed it was coming out of the penstock?

(Testimony of W. B. Hargraves.)

A. I don't see how he could if he built the penstock and knew where it was.

Mr. HELLENTHAL.—I object to that question because there is no evidence that anybody who helped build the penstock saw any water. [464]

The COURT.—It is argumentative, Mr. Roden.

Mr. RODEN.—All right. That is all.

Redirect Examination.

(By Mr. HELLENTHAL.)

Q. You know that no man could look up there and see the water from the penstock flow towards him if he was on Front Street or on the Pacific Coast dock or anywhere along there, could he?

A. No, sir—couldn't see it flowing towards him.

Q. There would be no water flowing towards him, whether it was Jim Larson or anybody else?

A. No.

Q. Now, Mr. Hargraves, just a question about the oscillation of those wires. How would that pull come if it were standing in a slide area, if a landslide started?

Mr. RODEN.—I object to that; he has already gone into that.

The COURT.—What is the point you want to rebut?

Mr. HELLENTHAL.—Mr. Roden has been asking about stretching and tightening the wires, and how that would affect the oscillation of the wires, and Mr. Hargraves told Mr. Roden that that had nothing to do with conditions here on the hillside—

(Testimony of W. B. Hargraves.)

the stretching of the wires was not a parallel case with this situation. I am asking Mr. Hargraves to explain just what he meant—to tell the jury what he meant.

Mr. RODEN.—He stated on direct examination that the wires would stretch, and I wanted to show on his cross-examination that they would stretch and when, and that if the slack were out they could not vibrate so far.

The COURT.—He may answer the question and you may cross-examine him again.

A. The wires oscillate.

Q. I don't think you have got my question, Mr. Hargraves. When Mr. Roden was examining you you said there was a difference between the matter that he was interrogating you about [465] and this case—about the tightening and stretching of the wires, and the vibrations—I want you to explain to the jury fully why, and what you mean by it.

A. The slide would not move all at once—probably came in a series due to the uneven character of the ground—probably moved in a series of jumps.

Q. Jerks?

A. Jerks, and that would move the tower and give the wires a chance to vibrate; each time the tower would move with the ground that oscillation would be set up—the magnitude of the oscillation I don't know anything about.

Mr. HELLENTHAL.—Your Honor, I intended to introduce this picture with the witness on direct examination, but overlooked it and I would like to

(Testimony of W. B. Hargraves.)

put it in now. Do you know what that picture is, Mr. Hargraves? A. Yes, sir.

Q. What does that represent?

A. That represents the hillside before the slide.

Q. The houses on there marked Koski house, Larson house, and other houses, who marked those?

A. I marked the houses.

Q. And the houses marked are the houses referred to in this trial by the names indicated on the picture? A. Yes, sir.

Q. Does the picture show the area from which the slide occurred?

A. Yes, approximately so, as near as you could put it on a photograph.

Q. And that is indicated how?

A. By this heavy line here.

Mr. HELLENTHAL.—I offer that picture in evidence.

Mr. RODEN.—I want to ask him a question or two about it first.

The COURT.—You mean as preliminary, or are you cross-examining him now?

Mr. RODEN.—All right—let him introduce it—I have no objection. [466]

(Whereupon said picture was received in evidence and marked Defendant's Exhibit No. 8.)

Q. That is the same picture as the small picture which has been introduced?

A. Yes, it is an enlargement of that picture.

Mr. HELLENTHAL.—That is all.

(Testimony of W. B. Hargraves.)

Recross-examination.

(By Mr. RODEN.)

Q. According to this picture, Mr. Hargraves, the slide moved from left to right?

A. The picture was taken from that side of the slide area—taken from over here.

Q. Well, then, it doesn't really show how the slide occurred, or the slide area, with reference to the Koski house?

A. Why, yes, as near as I could put it on there, Mr. Roden.

Q. Did you look at it sideways, look at it from this way, or did you stand right in front?

A. If the picture were taken right in front it would look different.

Q. As a matter of fact if a man looked at this picture from the front, the slide would be here, wouldn't it?

A. No, if you looked from the front you would look from over here, and you would be looking right straight up at it. This picture is taken from the side.

Q. This is the gulch, isn't it, that we have spoken about? A. Yes.

Q. That is the gulch this side of the house?

A. Yes.

Q. And that gulch is this side of the buildings?

A. Yes.

Q. I mean this side of the Koski building?

A. Yes; right at this corner.

Q. Didn't the slide material move into the gulch?

(Testimony of W. B. Hargraves.)

A. I don't think it did. [467]

Q. It is lying in the gulch now, isn't it?

A. I heard testimony in the other case—I don't think it does—it came practically straight down, I think.

Q. But there is slide material in the gulch now, isn't there?

A. Below where it broke away from here?

Q. Yes, right here, below the Koski house—lying in the gulch now, isn't it? A. Part of it.

Q. The way you have it here you take it away from the gulch.

A. Oh, no, the gulch comes in behind there too.

Q. You want to tell us that the gulch came behind the Koski house? A. Came at this corner of it.

Q. It didn't come within 15 feet of the Koski house, did it? A. What point of the gulch?

Q. The gulch itself.

A. I think it did, as near as I can find out.

Q. Came within a few feet?

A. Within a few feet—right near that corner of the Koski house.

Q. Five or 10 feet?

A. Somewhere around there.

Q. All right. Now, the way this picture looks the slide comes from up here, about west on the mountain-side, comes from the left and goes to the right, is that it? That is the way the picture shows it.

A. That is the way it would look if you took a

(Testimony of W. B. Hargraves.)

picture from that same point now. I see that line there.

Q. That is what that picture shows?

A. That picture don't show that—it shows it on that picture.

Q. The way that you have marked it, it came from the left and went to the right.

A. On the picture, yes.

Q. When in truth it came from the right and went to the left, didn't it? [468]

A. Not on the picture.

Q. I am not talking about the picture—I am talking about how the slide came.

A. You can tell by looking at the plan.

Q. Did it come from right to left?

A. It came straight down there from behind the Koski house.

Mr. RODEN.—All right, that is all.

Redirect Examination.

(By Mr. HELLENTHAL.)

Q. Why does that picture show the slide to be where it is?

A. Because that is where it will show—you mean my line on there?

Q. Yes.

A. Because that is approximately where the line of the slide is now.

Q. Where the line of the slide is, but why does that discrepancy occur that Mr. Roden has been talking about?

(Testimony of W. B. Hargraves.)

A. Due to the point where the picture was taken.

Q. Due to where the camera stood? A. Yes.

Mr. HELLENTHAL.—That is all.

(Witness excused.) [469]

Testimony of P. R. Bradley, for Defendant.

P. R. BRADLEY, called as a witness on behalf of the defendant, having been previously duly sworn to tell the truth, the whole truth, and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. HELLENTHAL.)

Q. Your name is— A. P. R. Bradley.

Q. Where do you reside?

A. Treadwell, Alaska.

Q. Do you know the Alaska Juneau Gold Mining Company, the defendant in this case? A. I do.

Q. What connection do you have with that company? A. I am general superintendent.

Q. Were you acting as such—how long have you been acting as such, Mr. Bradley?

A. Since the 1st of September, 1914.

Q. And you were so acting when this slide occurred? A. I was.

Q. What is your profession, Mr. Bradley?

A. I am a mining engineer.

Q. As a mining engineer have you also studied engineering geology? A. I have.

Q. You have a knowledge of engineering geology as well as mining engineering? A. I have.

Q. How long have you followed your profession

(Testimony of P. R. Bradley.)

both as a mining engineer and a geologist?

A. Twenty-five years.

Q. What countries have you followed it in?

A. Oh, California, Mexico, South America, Canada, Alaska, Australia and other places.

Q. In California, Mexico, Canada, Alaska, South America, Australia—where else? [470]

A. Nicaragua.

Q. Where else?

A. Oh, a number of different states in the United States.

Q. Have you also been in various parts of Asia and Europe in connection with mining examinations and things of that kind, in connection with your line of business?

A. No, I haven't been in Asia, nor have I been in Europe in connection with mining examinations.

Q. What part of Europe have you been in in that connection?

A. I haven't been in Europe in connection with mine examinations.

Q. Your European experience was not in connection with mining examinations. Now, Mr. Bradley, you are familiar with conditions around the slope of Mount Roberts? A. I am.

Q. And are familiar with the works of the Alaska Juneau? A. I am.

Q. Familiar with the flume and penstock that have been referred to in this case? A. I am.

Q. And the various other things referred to?

A. Yes.

(Testimony of P. R. Bradley.)

Q. Do you know when that penstock was built?

A. Why, I think the penstock was built in the fall of 1916.

Q. Under whose direction and supervision was it built?

A. Under my general direction and supervision.

Q. Who devised the plan for its construction—that is, in a general way? A. I did.

Q. And determined upon its location?

A. I did.

Q. Now, prior to that time how was the water conveyed?

A. Prior to the time of the construction of that penstock the water was conveyed to the 50-stamp mill around the hillside where the tram line appears in a flume that ran along with the tram line. [471]

Q. The penstock that was in use then—

A. Well, there was no penstock—the only thing that served as a penstock was a tank that the flume spilled into at the mill.

Q. And the water was taken from that?

A. The mill water was taken from that and the surplus went into the tailings.

Q. And in 1915 you made a change?

A. In 1916 we made a change.

Q. And that change resulted in the construction of the penstock which is shown upon Exhibit No. 2?

A. Yes.

Q. How did you happen to select that place, Mr. Bradley,—I want to ask you a question or two first

(Testimony of P. R. Bradley.)

before I ask you that. That water is taken from Gold Creek? A. Yes, sir.

Q. And is utilized and used by your company in connection with its mining and mill operations on the channel? A. Yes.

Q. Now, answer the other question that I asked you, please.

A. Well, originally the flume line that extended from what is called there "the old portal" to the 50-stamp mill carried water to the 50-stamp mill, but at that time the tram line which extended around the hillside to the 50-stamp mill was only a temporary line, and when we constructed the 8,000-ton mill we built a more substantial and double track line from what is now called the new portal to the 8,000-ton mill. Well, in doing that we had to abandon the old flume which ran along with the temporary track; then we were confronted with the question of finding means to get the water from the old portal of No. 3 tunnel to the 8,000-ton mill; and after a good deal of consideration it was decided to carry it over from that portal to the new mill in a 30-inch pipe-line, which would deliver the water to the mill tank, as is designated on the map, and the order was placed with some firm in Portland, I [472] believe, for that pipe; but in the meantime the city of Juneau was anxious to secure a connection with our salt-water system—

Mr. RODEN.—I don't see any purpose of giving a history of what every man wanted or contemplated doing—the question was what was done.

(Testimony of P. R. Bradley.)

The COURT.—I do not see, Mr. Hellenthal—

Mr. HELLENTHAL.—Just explaining why that system was put there the way it is.

The COURT.—Explaining it—he goes back to the year one in explaining it.

Mr. HELLENTHAL.—We are several years from the year one, your Honor. We are explaining why that 30-inch pipe is in there—it only takes a moment.

The COURT.—The 30-inch pipe was reduced to a 24-inch pipe a little later on. It don't make any difference why it was done or when it was done—that was the condition as it existed. Proceed.

Q. Go ahead, Mr. Bradley.

A. The city was anxious to secure connection with our salt-water system which extended from the power-house to the mill tank, and arrangements were made whereby under certain considerations we were to construct that line. That line had to be below the mill tank—the line we had contemplated was above the mill tank, and if we had put both of those lines in we would have had duplicate lines along that hillside; so the two lines were combined in one line, and that developed the necessity of having a line below the mill tank along the hillside to a point near the administration building, and that also developed the necessity of carrying this line up the hill to some point where we could get the water from the No. 3 tunnel in to that pipeline; and after a good deal of consideration and deliberation it appeared that this was the only safe

(Testimony of P. R. Bradley.)

place to put the pipe-line. We would have desired to put it straight up [473] here so as to go right into the portal of the tunnel and obviate the necessity of any construction on the hillside, but the ground conditions did not permit of this, and this seemed to be the only place where we could put the pipe-line in and get it buried, and that pipe-line determined the situation of the penstock. That is how the penstock happened to be at that point.

Q. Go ahead in your own way and finish.

A. I believe that answers the question.

Q. Then the penstock was built?

A. Then the penstock was built at that point.

Q. How was the penstock constructed?

A. Well, the penstock was a box-like affair with the botton constructed so that the pipes would enter into it at right angles to the angle of the pipe. The lowest pipe was a 4-inch pipe going to the power plant; the next pipe was the 8-inch pipe of the city line; and the third pipe was the 30-inch pipe which carried the water to the mill.

Q. Is that 30-inch pipe a 30-inch pipe all the way?

A. No; it goes down the hill here, and then it is reduced to 24 inches, and that again is reduced to 20 inches.

Q. Is there any valve in that pipe?

A. When we laid out the pipe-line we considered the whole situation there and we determined that we had quite a stretch of pipe along the hillside with a number of city valves in it, and we realized

(Testimony of P. R. Bradley.)

there might be occasions arise when we would want to make use of that pipe for repairs or changes or alterations or additions for the city fire department, so in order to make that possible without shutting down the mill we put in a valve at the mill.

Q. What other contrivance do you have to get water to the mill besides this fresh water?

A. We have two salt-water pumps in the powerhouse.

Q. These pump the water from where to where?
[474]

A. Those pump the water from Gastineau channel to the mill tank.

Q. Those supply water when the fresh water isn't available; is that right? A. That is true.

Q. What devices did you have in the mill, if any, to inform those in the mill of a shortage of water in the tank—at the time of the slide, I mean, January, 1920?

A. At the time of the slide there were some lighting arrangements on the outside of the tank which would signal whether or not the tank was full; and also there was an arrangement whereby a bell rang on the ball mill floor in case the water got to a point, 3 feet, I think, below the overflow point.

Q. If the water got 3 feet below the overflow point the bell rang on the ball mill floor? A. Yes.

Q. And what lights flashed,—do you know anything about that—what colored lights?

A. There were colored lights—my recollection

(Testimony of P. R. Bradley.)

of these things is not distinct—simply know they had that system.

Q. Know they had the system but don't recollect just exactly how it was carried out? A. No.

Q. That has since been changed? A. Yes.

Q. And what was the purpose of installing that system,—what necessity exists for having a steady flow of water in the mill?

A. There are two necessities. In the first place there are a great many operations in the mill that depend for their success upon a uniform flow of water. That is one necessity. And another necessity was that the tailings flume, after we got it into operation, was not of sufficient grade to carry the tailings away without the tailings flow being diluted with a sufficient quantity of water. Besides that it is used for direct milling purposes. [475]

Q. If anything should happen to the flume at any point between the mill tank and the intake, how would those lights act and the alarm act in the mill? A. Between which points?

Q. Anywhere—anywhere along the flume, if the flume should break or any other thing occur.

A. In case there should be anything of that character occur that would interfere with the water in the mill, these automatic arrangements would operate.

Q. Immediately give the alarm?

A. Yes, sir; and furthermore the overflow at the tank would cease, and at that time that was easily visible from the mill superintendent's office.

(Testimony of P. R. Bradley.)

Q. What is the condition of the water of Gold Creek, as to whether it is muddy or clear or otherwise, generally speaking?

A. Generally speaking, the water of Gold Creek is clear water.

Q. Are there times in the year when there is any moss or leaves or other debris in the water?

A. Oh, yes; at times of sudden freshets; in the fall after the leaves have been dropping, a freshet will pick up an unusual number of things of that character.

Q. Now, in connection with your operations in the mill is there any necessity for having the water clear?

A. Oh, yes; sometimes we are using water on the concentrating tables where the amount required is just what will come through a valve; and if we were to allow all this foreign material to come into the pipe-line we would have all these valves clogged.

Q. Have to keep it clean?

A. Yes, have to keep it clean.

Q. What did you do at the penstock when you first installed it with a view to keeping the water clear, if anything?

A. There was a flat screen put in there.

Q. How long did you have that in there?

A. I don't recall just how long that was in. [476]

Q. I mean approximately how long—a year or two?

A. Oh, I don't know—I don't think it was that long.

(Testimony of P. R. Bradley.)

Q. It wasn't two years?

A. No, I don't think so.

Q. What did you find with reference to the moss and debris that came down the creek, as to how it acted on the flat screen?

A. Oh, well, that device was unsatisfactory.

Q. You found it was unsatisfactory. Why was it unsatisfactory?

A. Well, in order to work satisfactorily the meshes had to be large and that would let fine material get into the pipe-line, and in order to keep that out the meshes had to be small, and you couldn't have much success with a flat screen and small meshes.

Q. There were times when the small meshes would clog up; is that the idea? A. Yes.

Q. Ordinarily, with the ordinary flow of water did you have any difficulty with the flat screen, when there was no freshet?

A. No, not under ordinary conditions.

Q. It was only in time of freshet that the flat screen would not take care of the water?

A. Under extraordinary conditions.

Q. What did you do when you found out that the flat screen was not satisfactory?

A. The problem of putting something in there that would be more automatic in its character was discussed, and it resulted in the installation of this trommel screen, which is the usual device—the device commonly used in places of that character.

Q. What kind of a device is a trommel screen?

(Testimony of P. R. Bradley.)

I wish you would explain that to the jury so they will understand clearly what it is. Just a minute—the first screen you had was just a mere flat screen put over the top; is that right? A. Yes, sir.

Q. And this trommel screen differs from that screen in what effect? [477]

A. It isn't flat, in the first place. This trommel was about 4 feet in diameter at one end and about 3 feet in diameter at the other, and about 8 feet long, and the surface was what I think they call No. 6 mesh screen—that is a screen with openings approximately an eighth of an inch square; and that was installed on top of the penstock, and the water from the flume came in the one end and fell through the openings in the screen, and at the same time the trommel was constantly revolving, so any foreign matter in there would gradually work toward the far end and be discharged.

Q. What did you do in the way of installing any device to discharge the moss, leaves, or whatever might be taken out of the water—discharge that on the outside of the penstock?

A. Well, there was a small spout put there so as to carry it away from the penstock—carry it away from the end of the trommel so it would not back up,

Q. Now, was that spout designed to carry water?

A. No, it was not designed to carry water because according to our calculations there would be no water for it to carry.

Q. What was it designed to carry?

(Testimony of P. R. Bradley.)

A. Designed to carry the brush and rubbish that was screened out of the water.

Q. Now, as soon as that screen was in operation was there any chance for water to overflow the spout? A. No.

Q. If the screen stood still under ordinary conditions, when the water was not charged with an unusual quantity of debris, would there be any chance of the water running over the spout?

A. No, not under ordinary conditions.

Q. When did the unusual conditions occur when it was necessary to keep the screen in motion?

A. Oh, the unusual conditions occur generally after heavy freshets—more particularly in the fall of the year.

Q. Fall and spring? [478]

A. Yes, and the spring, too, when the water is beginning to flow.

Q. How is that trommel screen kept in motion?

A. Kept in motion by an electric motor.

Q. What kind of electric system have you got here, Mr. Bradley?

A. We have both hydro electric and steam electric systems.

Q. Where is your power generated?

A. The power which is used at the Alaska Juneau plant is generated at Nugget Creek, at Douglas Island, at Sheep Creek, and in the absence of sufficient hydro electric power we also have a steam electric plant on the beach, where it shows on the map as "power-house"; and in addition we are

(Testimony of P. R. Bradley.)

also connected with the electric power system of the Alaska Gastineau Company.

Q. You have, then, four sources of power of your own, Nugget Creek, Sheep Creek, Douglas Island and the power plant of the Alaska Juneau?

A. Yes.

Q. And aside from that you are connected with the Gastineau Company so that you can get power from them in emergency cases?

A. We not only get power from them in emergency cases, but the last two winters we have gotten a great deal of power from them in a commercial manner.

Q. How does electric power compare with other forms of power as to reliability?

A. I think that modern electrical engineering has made electrical power about as reliable as power can be made.

Q. The most reliable form of power known, is it not, for general distribution? A. I think it is.

Q. How does your power compare with electric power generally as to reliability?

A. I would say that we were particularly well fitted as to reliability because of the numerous units that we have. Any [479] one of them could go out and we would still have power.

Q. Now, did you build any flume or box or pipeline to carry water from that spout at the penstock to Portal Gulch or some other place?

A. No, we did not.

Q. Why didn't you?

(Testimony of P. R. Bradley.)

A. Because there would be no water to carry.

Q. No occasion for it?

A. No; the design of the pipe-line was such that there could not be any water to carry—that was particularly gone into when the matter was first laid out.

Q. I wish you would explain that fully to the jury.

A. Well, at the time it was decided to build that pipe-line from the penstock to the mill by way of the administration building, the size was calculated to be sufficient to take more water than we could get into the penstock simply because we had an open end of that pipe into the storage tank at the mill and the regulating tank at the mill; and the flow was supposed to be continuous through No. 3 tunnel and through the penstock and through the pipe, and in order to insure its continuity we made plenty of provision that there would be capacity enough in that pipe-line.

Q. Why did you install such a big pipe?

A. Well, the pipe-line is not only installed for our maximum needs, but also to insure that all the water we could get through the No. 3 tunnel would get to the mill, where we need it.

Q. Do you know what the relative carrying capacity of the ditch in No. 3 tunnel and the pipe-line is, approximately?

A. Oh, the pipe-line is a little more than twice the capacity of the ditch.

Q. Now, the flume line itself, how does that com-

(Testimony of P. R. Bradley.)

pare with the ditch,—how does the wooden flume compare with the pipe?

A. The wooden flume, if it were in perfect order, would carry [480] about the same as the pipe.

Q. How did you happen to build the ditch smaller than the wooden flume?

A. The first tunnel that was built there was a single track tunnel and the ditch was right in the bottom of the tunnel, the full width. Subsequently we widened that tunnel and made it a double track tunnel, and while the widening process was going on we were running the 50-stamp mill, and for that reason it didn't seem expedient at that time to make any alterations in the ditch. We couldn't widen the tunnel under traffic and alter the ditch too,—and furthermore, at that time there was no necessity for it.

Q. The intention being that ultimately you would make the ditch as large as the flume, is that right?

A. That is a thing that can always be done if it becomes necessary.

Q. And when that is done it will have about the same capacity as the pipe leading from the penstock to the mill—is that right? A. Yes.

Q. You are familiar with the drainage system up there—the way the thing drains at the spout—the penstock?

A. I am familiar with the slope of the ground there, yes.

Q. Which way does it naturally drain?

A. Well, the natural drainage from the point

(Testimony of P. R. Bradley.)

where water that might flow over that spout hits the ground is down the line there marked "natural drainage." The only time I ever saw the water spilling over there, I traced it down and it went right down there.

Q. It would run there unless there were ice or snow or some other thing to impede its course?

A. There would have to be some condition that did not exist at that time to change its course.

Q. Could any flume or pipe-line or anything of that character, [481] built from the spout to Portal Gulch, serve any purpose at all?

A. No—no purpose for it to serve.

Q. It would be more apt to clog it up and fill it up with sand and leaves than the natural drainage channel, wouldn't it?

A. Yes; that is what would happen unless something closed were used, and then it might fill up with debris.

Q. Was there any reason to expect that thing to overflow at any time?

A. No, we had no reason to expect it to overflow—we had every reason to expect it not to overflow there—we thought we had taken all the precautions that could be taken against overflow.

Q. The installation of that trommel screen, what was that in the way of a precaution against that?

A. Well, that I think was the highest degree of precaution. A flat screen would have served the purpose but it was not automatic—and a flat screen is the customary screen; but a trommel screen is

(Testimony of P. R. Bradley.)

automatic, and as long as the trommel screen operates you have every assurance that it will clean itself and be in working shape.

The COURT.—Right there, Mr. Bradley, I want to ask you a question. What would take care of the debris that would clog up a flat screen,—what would take care of that?

A. That would have to be taken care of by hand from time to time.

Q. A flat screen is set on a slight angle so that some of it cleaned itself of its own accord?

A. Yes, but it would have to be taken care of by hand.

Q. You found that there were times when there were freshets and the water was charged with leaves and debris that it would require too much attention? A. Require too much attention, yes.

Q. Now, is that trommel screen and penstock still in existence? A. No, they are not.

Q. When did you move them?

A. We moved them last year. [482]

Q. What time of the year?

A. Oh, some time through the summer, we started the work; it was completed along towards fall.

Q. At that time did you move the change house?

A. Yes, moved the change-house at the same time.

Q. And the flume? A. And the flume.

Q. Did you leave anything in that vicinity at all?

A. We didn't leave anything that is shown on that map. Of course we had to put in something to get the water from the portal of the tunnel to

(Testimony of P. R. Bradley.)

the pipe-line,—the original pipe-line is still in the position as shown on the map.

Q. None of the buildings or other structures that are now shown on the map are in position now?

A. Didn't leave the penstock nor the flume nor the change house—the snowsheds are still there.

Q. Why did you make that change?

A. At the time I came here the change house was there,—I had nothing to do with that, and at the time I put in the penstock where it is, it seemed at that time to be the right thing to do; but in the summer of 1918, when my brother came up here, we went over that place together and he became fearful of the character of the hillside further up, and he didn't like so much structure to be in the open—he was afraid something might happen there that would get us into trouble with somebody down below, and he consented to the expense of making the change, and at that time we were making estimates of the amount of money it would require to do certain items of work around the place, under a definite allowance we are working under—and we were allowed to make that change.

Q. At that time you were busy making a good many changes?

A. Yes, we made a good many changes—made changes in the mill—

Q. And those changes changed your program to what extent?

(Testimony of P. R. Bradley.)

A. Changed the program calling for half a million dollars. [483]

Q. Your program called for half a million dollars worth of changes? A. Yes.

Q. And this was part of it? A. Yes.

Q. How much was appropriated for this purpose? A. \$25,000.00.

Q. That was when? A. That was in 1918.

Q. What was done pursuant to that, afterwards?

A. I didn't do anything for sometime because there were many things in the mill that had to be changed in order to get the property where we thought it would be on a proper producing basis. That was the primary object of the whole change, and the one of greatest importance. I didn't do anything on this job until the year 1920. In the spring of 1920 we had accumulated quite a considerable waste dump just right here northwest of the 50-stamp mill, in about here; and after we had got that place pretty well filled up with waste it developed that we had crushed the pipe, and we promptly went on salt water and we were on salt water until along toward the end of 1920.

The minute the pipe was crushed and the whole system rendered useless, and no fresh water coming at all, why, then there would be no interruption to any operations by starting to make the change, and the change was started at that time.

Q. Previous to that time had your annual reports shown that the change was contemplated?

A. Yes.

(Testimony of P. R. Bradley.)

Q. Your annual report for what year?

A. For the year 1918.

Q. Your annual report for the year 1918 showed that you intended to make that change at that point? A. Yes.

Q. For the reasons you have indicated?

A. Yes. [484]

Q. Was any mention made of it in your annual report for 1919?

Mr. RODEN.—We object to this—we are back to the old story—we are getting the life of the Alaska Juneau.

The COURT.—Objection sustained.

Q. Now, proceed, Mr. Bradley; what did you do in the spring of 1920 with reference to this matter?

A. Why, I took the matter up with my brother and he advised me not to make any changes there if there was any chance that it could possibly be construed as a voluntary admission that—

Mr. RODEN.—We object to that.

The COURT.—You have answered his question. Ask another question, Mr. Hellenthal.

Mr. RODEN.—He always tells what his brother directed him to do—let him say what was done.

The COURT.—I told Mr. Hellenthal to ask him another question, Mr. Roden.

Mr. RODEN.—I beg your pardon—I didn't hear the ruling of the Court.

Q. What did your brother direct you in connection with this matter at that time—your brother is the directing head of this concern, isn't he?

(Testimony of P. R. Bradley.)

A. Yes.

Q. President of it.

A. He directed me not to—

Mr. RODEN.—We object to what his brother directed him to.

The COURT.—Of course that is immaterial what his brother directed him to do. What was done—what did he do?

Mr. HELLENTHAL.—Your Honor, Mr. F. W. Bradley is the directing head of this concern—Mr. P. R. Bradley does not do anything without his direction. I want to show why he did it, how he came to do it, and for what reason.

The COURT.—Aren't you quibbling over something that does not amount to much? I am ruling on this, not so much that it either helps or hurts, but I am ruling to save time. I do [485] not think the question is asked right, and I do not think the objection amounts to anything. I want to make some progress in the case—get down to something that counts.

The COURT.—Did you do that your brother told you to?

The WITNESS.—No.

The COURT.—Then it does not make any difference what your brother told you to do about it.

Mr. HELLENTHAL.—It might, your Honor.

The COURT.—What difference would it make what his brother told him to do if he did not do it?

Mr. HELLENTHAL.—I don't want to be put in the light of stating matters before the jury that

(Testimony of P. R. Bradley.)

are not evidence. If the Court wants me to I will tell the story that I am trying to prove by this witness. Mr. F. W. Bradley wrote to Mr. P. R. Bradley and told him the change they contemplated in former years should be made but he said, "In view of the fact that this slide occurred there, I want you to consult Mr. Hellenthal to see if it might be construed as a voluntary admission on our part that we were liable." Mr. Bradley came to see me and advised with me, and I asked him if he thought that there was any danger that anybody felt that they were responsible any longer, and he said if they made the changes they might; and I told him under those circumstances not to make the change. Then when I was away a big rock came down from the top of the mountain, about the time Mr. Dudley was there, and conditions began to look worse there—there is a big chunk of dirt that is still hanging over the side of the mountain that may come down any minute. That rock called Mr. Bradley's attention to the situation, and he went up there and investigated the conditions; and in order to notify the people of the town of the dangerous condition he took Mayor Robertson up there with him and showed him that it was dangerous to keep any structures under it. After showing that situation to Mr. Robertson, he went to work and made [486] the changes, just the time the pipe-line broke down there, and that his delay in making the changes was simply due to the expression of my views to him at the time.

(Testimony of P. R. Bradley.)

The COURT.—Objection sustained.

Q. What did you do, Mr. Bradley?

The COURT.—What did you do—not what your brother told you to do.

Mr. HELLENTHAL.—We will take an exception to the ruling of the Court.

Q. What did you do in 1920?

A. In 1920 we moved the penstock, change house and flume, and connected that portal of the tunnel with the end of the 30-inch pipe-line with a steel pipe, which we put in a trench as close to the hill as possible, so in case there would be any slide at any time it would come over it rather than disturb it.

Q. Why did you make that change?

A. On account of the character of the country above there, and on account of the fact that the stuff evidently started to move.

Q. I want you to explain to the jury just what the character of the country above there was, and what induced you, or precipitated the making of this change.

A. The character of the country up there is extremely precipitous—extremely rugged. There are a number of large logs up there, and a great many boulders—huge boulders that seem to be standing without any support; and it is only a matter of time before frost or the elements are going to push those things out of there. The more I look at that country the less I like it. It is an extremely bad place—it is a place where slides have come down

(Testimony of P. R. Bradley.)

because the bedrock is all scoured slick.

Q. What is the condition with reference to a chunk of dirt that is hanging out there now, up above where the penstock and change room stood?

A. I don't know the condition of any particular chunk, but there are a large number up there that are not safe.

Q. This is the matter that your brother referred to in 1918? [487] A. Yes, sir.

Q. Was there any other reason why your brother wanted to move those structures in 1918?

A. That was all—because of the danger that existed above, and the trouble we might get into with people below in case there was a slide there that would do any damage.

Q. That ground above there on which this slide material comes, is that on your property or above your property?

A. Above our property—we have no control over that.

Q. What happened in 1920 that precipitated the making of this change? I mean in the way of a slide at that point.

A. There was a large boulder came down there—just missed the change house, just missed the flume—that was a boulder two or three feet in diameter, I suppose. I don't know where it came from, but it came right down by there, and just missed doing damage.

Q. That was just about the time Mr. Dudley was up there, wasn't it? A. I believe it was.

(Testimony of P. R. Bradley.)

Q. He saw it, didn't he? A. I believe he did.

Q. And shortly after that what else happened?

A. We found that the pipe-line was crushed.

Q. The pipe-line being crushed could you use that pipe? A. No.

Q. What did that have to do with making the change at that time?

A. That pipe-line was out of commission and if we made the change at that time we would not be holding up anything that depended on that pipe-line because it was out of service anyhow.

Q. And the change was made? A. It was.

Q. Now, how did you change it—what did you do—what is the difference up there now?

A. We brought the water out straight through the tunnel—through the portal, and just inside here somewhere—I don't know the [488] distance—we put in some stationary screens, slightly inclined toward the flow; then we brought the water from there out in a flume and the flume follows, as close as we could get it, to the bank underneath these snowsheds. Prior to that time the flume was visible from town—it was right out in front of these snowsheds. Now, it is put in as close to the bank as we can get it—brought in around here—dug a little excavation to get it in closer to the bank. I think the flume terminates just about this point; and from there the water goes into a large steel pipe 30 inches in diameter, and is carried by a long steep elbow into the 30-inch pipe, and also the 8-inch and 4-inch pipes, and carried around through the

(Testimony of P. R. Bradley.)

same long switch into the end of the flume.

Q. How is that flume with reference to the hill-side, and with reference to slides from above?

A. We not only carried it in so that there would be a sharp bedrock bank above it along the hill-side, so that in case anything came down it would jump over it, but we also buried it.

Q. So that a slide coming down from above would not affect it? A. No, I don't think it would.

Q. What did you do with the change house—did you leave that where it was?

Mr. RODEN.—I think I will object to the question. It is all subsequent changes made, and it is all a waste of time.

The COURT.—I do not understand what time you are referring to about the changes having been made.

Mr. HELLENTHAL.—They were made since the slide. The purpose of it is to show why these changes were made. I want to show that it wasn't done because of this slide, but it was done for other reasons.

The COURT.—Wouldn't one general question cover that? Were any changes made by you on account of this slide having occurred? Then if Mr. Roden wants to controvert it he may do so on cross-examination. One general question and one answer would [489] settle the whole thing.

Mr. HELLENTHAL.—I offer to prove why they were made.

The COURT.—You can prove why they were

(Testimony of P. R. Bradley.)

made by just simply asking the question whether any of them were made on account of this slide. You have developed the fact that changes have been made.

Mr. HELLENTHAL.—All right—I will ask this question: Did you move the change house at the same time? A. We did.

Q. Did you leave anything under that loose material—any kind of a structure at all—change house, flume, or anything else? A. No.

Q. Moved everything—where did you move the change house to? A. Inside of the tunnel.

Q. A solid rock change-room, is that right?

A. Yes.

Q. Now, did you take any steps to notify the people of Juneau of the dangerous condition that existed there?

Mr. RODEN.—We object to that, if your Honor please.

The COURT.—You mean did you take any steps after these changes were made?

Mr. HELLENTHAL.—The time the changes were made?

The COURT.—The changes were made after the slide?

Mr. HELLENTHAL.—Yes.

The COURT.—And now you ask him if he took any steps to notify the people of Juneau—

Mr. HELLENTHAL.—I will state this—it doesn't make much difference—but if a man sitting on the jury, or you sitting there or I sitting here,

(Testimony of P. R. Bradley.)

hear Mr. Bradley telling about the dangerous condition of that mountain, knowing there are people living underneath, we would say, if Mr. Bradley made the changes to protect his own property why didn't he do something to protect the other property down below. If counsel objects to it, all right.
[490]

The COURT.—The objection is sustained.

Q. Now, Mr. Bradley, did you examine that slide area after the slide?

A. Yes; I examined it first, I think, on the 5th of January.

Q. What year? A. 1920.

Q. Where were you at the time of the slide?

A. I was in Seattle.

Q. You were on your way from San Francisco to Juneau? A. Yes.

Q. You were not here when the slide happened?

A. No.

Q. Upon your arrival on the 5th what did you do in the way of examining the slide area?

A. That is the first thing I did after I got here.

Q. What did you find in the slide area in the way of running water, if anything?

A. Oh, there were bedrock—I think two bedrock streams running out.

Q. Two bedrock streams—where were they running?

A. They were running from, I should say, a point underneath the letter "D" in "slide"—somewhere along there—and went over toward the letter "S."

(Testimony of P. R. Bradley.)

Q. Went in the neighborhood of the letter "D" and in the neighborhood of the letter "S"?

A. Yes.

Q. In the word "slide" in "slide area"?

A. That is about my recollection. One wasn't such a noticeable stream—the one under the letter "D" was the larger stream.

Q. How large was that?

A. Well, I don't know just how to measure that—that was a stream perhaps an inch deep and it might be 3 or 4 inches wide.

(Whereupon court adjourned until to-morrow morning at 10 A. M.) [491]

MORNING SESSION.

March 29, 1921, 10 A. M.

Mr. HELLENTHAL.—If your Honor please, I have a couple of witnesses who wish to go—they are from the "Redondo," and with the Court's permission I will put them on now and then finish with Mr. Bradley?

The COURT.—Very well.

Testimony of Charles Carlson, for Defendant.

CHARLES CARLSON, called as a witness on behalf of the defendant, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. HELLENTHAL.)

Q. State your name. A. Charles Carlson.

(Testimony of Charles Carlson.)

Q. You are on the "Redondo"? A. Yes sir,

Q. And she is going to sail in a few minutes?

A. Yes, sir.

Q. Were you here at the time of the slide, on January 2, 1920? A. Yes.

Q. Did you notice the slide at that time?

A. After it slid.

Q. After it slid you saw it?

A. After it slid.

Q. I direct your attention to a picture here—do you observe the place where the slide broke loose at that time? A. I do, yes, sir.

Q. When you first saw it? A. Yes.

Q. That was how long after the buildings had slid?

A. Might have been two or three minutes.

Q. Immediately afterwards? [492]

A. Yes, sir.

Q. Was there any water running over that part of the slide when you noticed it first?

A. We were lying at the old Pacific Coast coal-bunker and I couldn't see whether there was any water or not.

Q. From where you were could you see any water at that point?

A. No, sir, I couldn't see no water because we were so far away, but I know there was water running down afterwards.

Q. But when you first looked did you see any water? A. No.

Mr. HELLENTHAL.—You may cross-examine.

(Testimony of Charles Carlson.)

Cross-examination.

(By Mr. RODEN.)

Q. You don't know whether there was any water or not, Mr. Carlson—it was too far to see?

A. It was too far to see.

Mr. RODEN.—That's all.

Q. (By Mr. HELLENTHAL.) You saw it afterwards?

A. I went up to the slide afterwards and that is when I saw it.

Mr. HELLENTHAL.—That is all.

(Witness excused.) [493]

Testimony of R. P. Lovely, for Defendant.

R. P. LOVELY, called as a witness on behalf of the defendant, being first duly sworn to tell the truth, the whole truth and nothing but truth, testified as follows:

Direct Examination.

(By Mr. HELLENTHAL.)

Q. State your name. A. P. R. Lovely.

Q. You are on the "Redondo"? A. Yes, sir.

Q. Were you on the "Redondo" when she was in port at the time of the slide, the 2d of January?

A. Yes.

Q. At that time did you observe the hillside?

A. I did.

Q. Before the slide happened that morning did you see a stream of water coming from the flume?

A. Yes.

(Testimony of R. P. Lovely.)

Q. Look at that picture and point out to the jury where that stream was.

A. The stream was on this side.

Q. The same stream as shows on that picture?

A. Yes.

Q. Which way was that stream running—towards you or away from you? A. Towards me.

Q. Before the slide happened did you see any other stream coming from the flume?

A. Yes; there was a stream on the right—on the far side from me.

Q. Before the slide? A. Yes, before the slide.

Q. On the right? A. On the right side.

Q. That is the one you have just pointed to?

A. Yes. [494]

Q. On picture, exhibit No. 4, does that show the stream you saw before the slide?

A. No, this doesn't show the stream before the slide.

Q. Up in the upper corner here—this is an enlargement of that same picture—look at it a little more closely. A. Yes, it is this stream here.

Q. Right in the upper right-hand corner of the picture. A. On the right-hand side.

Q. After the slide happened—did you see the slide?

A. I didn't—you mean when it actually occurred?

Q. Yes.

A. I heard the noise on the boat and turned around and looked.

Q. After it happened did you see any other

(Testimony of R. P. Lovely.)

streams of water coming from the flume?

A. Yes, I saw a stream afterwards.

Q. Where was that stream?

A. That was more in this direction.

Q. In what direction did that spout?

A. Well, it came down towards the main street, down the side of the hill.

Q. When you were looking at it how were you looking at it, on the edge of it or on the face of it?

A. We were a good deal on the side of it—we were at the old Pacific Coast bunkers.

Q. And from where you were you were looking into the side of it? A. Yes.

Q. You heard the noise and saw the slide, you say? A. I was attracted by the noise; yes.

Q. Did you turn around at that time?

A. I turned around immediately and looked at it.

Q. Was there any water coming over the top at the place where the slide had broken loose?

A. No.

Q. How long was it before the water came over there?

A. I would say between 5 and 10 minutes, perhaps something like that, as near as I can remember—a short time like that.

Mr. HELLENTHAL.—You may cross-examine.
[495]

Cross-examination.

(By Mr. RODEN.)

Q. When did you see that stream?

A. This stream?

(Testimony of R. P. Lovely.)

Q. Yes. A. After the slide.

Q. You didn't see that stream before the slide?

A. No.

Q. The stream that you saw before the slide isn't on this picture at all, is it?

A. Yes, it shows here,—that is it there.

Q. I don't think so—you saw this one here.

A. I saw that one there.

Q. Don't you know this is a picture of the slide after it broke and not before?

A. I took it to be, yes.

Q. But this stream you saw before the slide, this little stream that is shown in here—

A. No, further up here. It was a larger body than shows on this picture. This picture doesn't show the condition as it was when the slide occurred. There was more water falling here than this picture shows.

Q. There was more water falling there?

A. Yes, a bigger body of water than shows on this picture.

Q. This exhibit 4 doesn't show the conditions as they were before the slide, as you saw them?

A. I am not speaking before the slide—I didn't observe that until the noise of the slide, and then I turned and saw it, and I saw this body of water on this side, apparently about here, as near as I can figure.

Q. After the slide?

A. Immediately after the slide.

(Testimony of R. P. Lovely.)

Q. Immediately after the slide you saw a body of water about here?

A. Yes. Just a moment, if you are showing just exactly—have [496] you got a better picture than that—more distinct?

Q. No.

A. As near as I can tell from the picture, it would be there, but that isn't very distinct.

Q. Show that to the jury.

A. It isn't very distinct, but I should say it would be about there.

Q. That was immediately after the slide?

A. Yes.

Q. Just as fast as you could turn around?

A. I had seen that water running there before.

Mr. RODEN.—That is all.

Q. (By Mr. HELLENTHAL.) The water you saw before the slide was further to the right, and the water you saw after the slide was to the left of that—when the two streams were running?

A. In this direction, yes,

Mr. HELLENTHAL.—That is all.

(Witness excused.) [497]

Testimony of P. R. Bradley, for Defendant (Recalled).

P. R. BRADLEY, recalled to the witness-stand.

Direct Examination (Cont'd).

(By Mr. HELLENTHAL.)

Q. Mr. Bradley, you returned here from San Francisco what day?

(Testimony of P. R. Bradley.)

A. I think it was on the 4th of January.

Q. After the slide?

A. Yes; the 4th of January, 1920.

Q. Now, did you at that time go up to where the slide occurred? A. No, I went up the next day.

Q. The next day would be the 5th? A. Yes.

Q. Which way did you go up, Mr. Bradley?

A. I started from Gastineau Avenue, right in front of the slide, and went up the trail—I went up this trail up to the penstock.

Q. What, if anything—first, before going up had you made an examination of the slide itself?

A. Yes; I noted carefully the conditions in the slide area.

Q. What, if anything, did you see there in the way of bedrock water flowing out of the bank?

A. Oh, there was quite a little stream—a larger stream on the right-hand side, and a smaller one on the left-hand side.

Q. Two streams? A. Yes.

Q. Flowing off of bedrock? A. Yes.

Q. Did you observe those streams afterwards?

A. I only observed the larger one—that stayed there for some considerable time. I remember watching it for about a month, and I didn't pay any more attention to it after that.

Q. You watched it for a month and know it kept running for a month? A. Yes.

Q. After observing that slide area carefully you went up the [498] trail? A. Yes.

Q. What was the condition of that trail at that

(Testimony of P. R. Bradley.)

time, as to whether there was ice in it or not?

A. Oh, there was ice on the edges.

Q. There was ice on the trail at that time?

A. Yes; there was ice on the edges of the trail.

Q. Did you stop at the point immediately above the apex of where the slide broke loose?

A. Oh, yes, I stopped there and took particular observations of conditions at that point.

Q. What did you observe there in the way of evidences of wash?

A. I saw where the water had passed through the grass—there were indications of that—the grass was bent down hill—there were little sticks and leaves that were held by the grass, showing that the water had flowed over there at that point.

Q. At what point was that—can you point on the map just where that was, Mr. Bradley?

A. That was at this point right here.

Q. That evidence of overflow there was between the trail and the top of the slide? A. It was.

Q. Was there any abrasion—any cut in the soil?

A. No, there was no abrasion at all—the grass is all intact across the width where the water had flowed over but it was laying downhill, and as I said, there were leaves and various things stuck in the grass.

Q. It showed that water had been running there?

A. Yes.

Q. What was the condition of the trail with reference to wash?

A. The bottom of the trail had the appearance of

(Testimony of P. R. Bradley.)

having been cleaned out by running water—it was clean of brush, and there was no small stuff there. The surface was hard and packed. [499]

Q. Had the trail itself been washed out beyond that—I mean scoured out in any way?

A. No. When I speak of the surface of the trail I mean the center. The surface of the trail is more or less trough-like, and the center was fairly free from ice—the ice was on the sides of the trail. I presume there was more or less ice across the entire width of the trail at some time but it was gone by the water washing over it; and the center of the trail—the center of the trough was clean—free from small material.

Q. What was the condition of the trail between the administration building and the upper end of the slide in that regard?

A. It had the same general appearance.

Q. There was no more wash—that is, as far as you could see, above the apex of the slide than there was below it?

A. No; the appearance was about the same all the way down.

Q. Did you follow the trail up at that time to the penstock? A. Yes.

Q. Right to the penstock? A. Yes.

Q. Did you make an examination of conditions up there? A. I did.

Q. Could you see any evidence that water had been running from the spout of the penstock down the hill towards the trail? A. I did.

(Testimony of P. R. Bradley.)

Q. What evidence did you see?

A. The same that I saw at the point I have just described. I saw the grass was laying down—was bent downhill, and there were more or less sticks and leaves caught and tangled in the grass.

Q. Was it so you could follow the course the water had taken? A. Oh, yes, it was quite perceptible.

Q. What course did the water take from the penstock down the hill?

A. It went from the penstock to the trail, and followed the trail down. [500]

Q. How far had it to run before it got to the trail? Approximately, I mean.

A. Oh, I suppose 50 feet.

Q. Can you show on the map just about the course the water took from the penstock to the trail?

A. It came right down this way—I don't remember now whether the water struck this point or whether it came down and struck the trail here.

Q. But anyhow it came down either one or the other of those two points?

A. Yes; it came down, I judge by the contours, here—it came down right like that.

Q. Was there evidence of wash along the course that the water had taken up there?

A. No, there was no evidences of wash. The trail, as I say, was clean.

Q. I am speaking between the trail and the penstock.

(Testimony of P. R. Bradley.)

A. No, there were no evidences of wash there—there were evidences of flow.

Q. The water had flowed there? A. Yes.

Q. But there was no abrasion?

A. No, there was no abrasion.

Q. No cut of any kind? A. No.

Q. Not even a quarter of an inch deep?

A. No. I examined the place very carefully—there could have been a place a quarter of an inch deep that would have escaped my attention or observation, but after careful examination—I was looking for conditions that were there at that time—I failed to observe that the water had scoured the ground. That is one of the things I was looking for.

Q. And you traced the course of the water how?

A. By the matted grass—the grass being bent downhill. [501]

Q. Did you observe the conditions under the spout of the penstock—right under the penstock, where it dropped down? A. Yes.

Q. Was there any hole or any place there that the water had washed out?

A. No, I saw no hole there.

Q. Was there any hole there?

A. No, there was no hole there.

Q. Was there any trench running down the hill from there, of any kind?

A. No; the hillside was in its normal condition. It was covered with grass and blueberry bushes,

(Testimony of P. R. Bradley.)

small weeds, and things of that character—it was in its normal condition.

Q. There was no evidence of any trench ever having been there in that neighborhood?

A. No.

Q. Did you direct these pictures taken, Mr. Bradley?

A. Yes, I did; as soon as I arrived here, on the 5th, I gave instructions that the pictures be taken just as quickly as possible so that they would show the conditions as they existed at the time of the slide. I didn't want any delay about this because the more the delay the more the conditions would change.

Q. And they were taken as soon as possible thereafter?

A. I turned in the order to have the pictures taken, and I think they were taken two days afterwards, on the 7th.

Q. Now, have you observed the snowshed water coming off of that flume at any time?

A. Oh, yes, many times.

Q. You have? A. Yes.

Q. Under what conditions will the water run off there—what are the weather conditions when the water runs off there?

A. It will run off promptly after an unusually heavy rain, or it will run off there after a protracted period of normal [502] rain, or it will run off when there is a normal rain on the snow. When I say it runs off I mean in such a manner

(Testimony of P. R. Bradley.)

as to catch the eye, I should think, of any one. Near the tunnel there is water there all the time which is not perceptible.

Q. How is that snowshed arranged with reference to Portal Gulch?

A. Well, the planks that form the snowshed are right against the bank—right in the ravine—driven right in close so that the water that comes downhill will run over the top rather than run through.

Q. And that is the water that flows normally in Portal Gulch? A. Yes.

Q. That is where those sheds are?

A. Yes, at Portal Gulch.

Q. Have you observed that water from the snowshed building when there was a heavy rain, from Front Street?

A. Oh, yes, I have observed that many times.

Q. How does it look from Front Street when there is a very heavy rain?

A. It comes down there like a wide straight waterfall—the heavier the rain the wider it is. It comes over and leaps straight out towards an observer who might be on Front Street, like a thin sheet.

Q. Where does it come from as it leaves the hill?

A. It comes over the—

Q. Where does it shoot out from?

A. It shoots out when it strikes the roof—that is, out over the flume at that point.

Q. It shoots out from the roof, and how does it look from the street with reference to being one

(Testimony of P. R. Bradley.)

stream or different streams, or whatever appearance it makes?

A. After it shoots out it looks like one stream, because if there are several streams on the snowshed after they hit this roof they spatter and widen, and that makes it look like one stream.
[503]

Q. Now, do you know where the Gastineau tower used to stand in the slide area? A. I do.

Q. Do you know where the wires cross?

A. I do.

Q. If a slide were coming straight down the hillside there where this slide occurred, what effect would that have upon the wires at the point where they cross, if the slide came down in a mass, as it did in this case, where the tower stood?

A. Well, that would depend upon how they were fastened at the insulators.

Q. You know how those wires are fastened, do you not, Mr. Bradley?

A. No, I do not—I understand—I have been told—

Mr. RODEN.—We don't want to know what you have been told.

A. Yes; I understand they go through loops where the transmission line is straight.

Q. At this point was the transmission line straight? A. Yes.

Q. And the wires would run through loops at this point? A. That is my belief.

Q. What effect would it have on the wires at the

(Testimony of P. R. Bradley.)

point where they cross,—you understand and are familiar with the fact there are two legs on the tower, the two hind legs, still in the ground?

A. I have no knowledge of my own about it—I understand that to be the case.

Q. Under those conditions what effect would the movement of the earth there, a slide movement, have upon the wires?

Mr. RODEN.—We object to the question because the witness expressly stated that he doesn't know how the wires were fastened.

Mr. HELLENTHAL.—I mean upon the wires at the point where they cross.

Mr. RODEN.—He said he didn't know. I have his answer—"Depends upon the proposition of how the wires were fastened at the insulators." [504]

The COURT.—Is that your answer, that you do not know how they were fastened, and the effect would depend upon how they were fastened?

The WITNESS.—I said I did not know. I only have knowledge and belief upon that subject.

Q. (By Mr. HELLENTHAL.) You have no personal knowledge of how those wires were fastened?

A. No.

Q. Would it make any difference how they were fastened, upon the effect at the point where they crossed?

A. No, only the effect would be more marked,—it would be a difference in degree, is all.

Q. A difference in degree. Now, then, you may answer the question—what effect would it have

(Testimony of P. R. Bradley.)

upon the wires at the point where they cross if the slide mass should move very slowly?

A. My opinion of the movement of that slide mass is that it was very slow in effect, but it would not be a continued slow, even, progressive movement—it would be a series of movements. All ground that I have seen move, after it started it did not move gradually and progressively until the final collapse, but it moved by a little yielding—

Q. Little jerks?

A. Well, a little yielding, and I know that any disturbance of that character would so agitate the tower that it would set up an agitation of the wires.

Q. By agitation you mean in this case it would shake the wires? A. Yes.

Q. How would the wires shake?

A. The start—they might start to shake anyway, but eventually they would reduce themselves to an up and down movement. Even if they started sideways, they would come to an up and down movement before they came to rest again.

Q. I wish you would explain to the jury why that is so.

A. Just simply due to the fact that there are two forces that [505] work there, the first force being the force that is transmitted through the disturbance of the tower, which might have been a horizontal force; then you have the force of gravity, which is a vertical force. Those two forces are determining the way that that wire is going to vibrate. The force of gravity is the most

(Testimony of P. R. Bradley.)

continuous—a very persistent force, while the other is the declining force; therefore the last movement of that wire is going to be more or less vertical, or at least with a vertical component.

Q. The pull of gravity is there all the time, whereas the other pull may be by jerks, and then stop a little? A. Yes.

Q. All right. Have you made an examination of this slide on the hillside, Mr. Bradley?

A. I have.

Q. Know its character and its condition?

A. I do.

Q. Do you know the slope of the hill there?

A. I do.

Q. If a stream of water were turned loose at the upper end there where the penstock was—say a stream of water that would run through a 12-inch box—some such stream as that were to run down the hillside, what would be the first immediate effect upon the hillside?

A. Well, the first immediate perceptible effect would be the scouring of a channel for itself.

Q. It would cut a channel for itself?

A. Yes.

Q. Would it soak in to any perceptible degree, or would it run off, Mr. Bradley? Explain that to the jury.

A. On that slope I do not see how it could soak in to any appreciable degree.

Q. It would not stand still long enough?

A. No. [506]

(Testimony of P. R. Bradley.)

Q. The water would seek its lowest level?

A. The water would run right down the hill—come down in a small cataract, that volume of water.

Q. Come down like a small waterfall?

A. Yes.

Q. Is the slope of the hill exactly even, or does it undulate more or less?

A. The general slope is not even—you take it foot by foot and there is more or less unevenness to it.

Q. Would the water so running down the hill have any tendency to cause the material lying on the hillside to slide down?

A. In my opinion the water coming down that hill would keep to the surface—the original surface, until it scoured itself a channel. It becomes a carrier of stuff that is cut out of the channel—it is not clear water, it is muddy water, and the mud lying on the bottom puddles the water. There might be some water soak in, but in my opinion the amount of water that would soak in under those conditions would be negligible. Of course it would wet the ground, but to soak in to any appreciable extent, I don't see how it could do it—not on that slope.

Q. Couldn't soak in to such an extent as to make the ground heavier?

A. No, I don't think it would.

Q. And if the ground were all wet what would the effect be?

A. If the ground were wet itself, that much

(Testimony of P. R. Bradley.)

quicker would it scour itself a channel.

Q. It would cut its channel that much quicker?

A. Yes.

Q. And it would soak in that much less?

A. Yes.

Q. Could a stream of water of that size, or a larger stream, in any way have a tendency to cause the ground to slide?

A. Not in my opinion—it would scour a channel, and the minute [507] a channel is scoured the water is confined and it takes care of itself.

Q. If it ran long enough it would form a new gulch, is that the idea?

A. Yes, form a new gulch.

Q. These gulches on the hillside to some extent have been formed in that way?

A. They have been formed by water.

Q. That is the way rivers are formed?

A. Yes; they scour their own channels.

Q. Where water comes from the ground at different points, what does it do with reference to confining itself in one channel afterwards?

A. Of course the tendency of all water is to seek the lowest level, and if it all comes to the lowest level it is all at one point.

Q. The tendency of water is to form one channel?

A. Yes; to get to the lowest point.

Q. Do you know what the effect is, Mr. Bradley, of making a cut or excavation in the bank on one of these hillsides? A. I do.

Q. What would the effect be of making a cut

(Testimony of P. R. Bradley.)

or excavation in the hill there on the slope of Mount Roberts?

A. The effect will be that you have removed the support of a certain mass of that ground, and it is only a matter of time when the support is removed in making the cut before the ground will yield to the pull of gravity.

Q. By that you mean it will do what?

A. Slide.

Q. If there is no cut made on this hillside at a given point, the ground is left in its natural condition, is there any special danger of slides?

A. No, I don't think there is any danger of slides on that hillside anywhere if the natural slope remains undisturbed. I am [508] speaking of that part of the hillside lying below solid bed-rock.

Q. Lying below the trommel screen?

A. Yes, lying below the trommel screen.

Q. I wish you would explain to the jury how that soil is deposited, in the first place, on the hill.

A. My opinion of the origin of this particular soil on this particular hillside is that at one time this gorge was full of ice, and as the ice receded it left the bare mountain without vegetation and without soil, because the ice had stripped everything of that character away; and from time to time the elements that work would cause the rock to slough off—wear down to the bottom and pile up in the slope that we see it now; and that is what is called a talus slope—a slope with broken debris lying at

(Testimony of P. R. Bradley.)

the base; and this mountain has been there so many years it has weathered away into soil. Of course the amount of material lying there has been added to from time to time by other material that comes from the hillside above, but you can dig into that hillside through there and find where the rocks have changed to soil without changing their position. In other words, you have a mass of soil which was once originally a mass of rock, and you can see that they have changed to soil without changing their position.

Q. And those deposits made in that way, how are they made with reference to rainfall and things of that kind?

A. Of course during the time that this rock pile is weathering away the rain can percolate through there and that would have a tendency to gather the finer stuff together and make the mass more compact.

Q. What is the condition of this hillside soil with reference to being wet or dry, generally speaking? A. Well, that hillside is generally wet.

Q. Does the soil on the hillside often reach the point of saturation? [509]

A. Well, I have seen the upper surface of the hillside in many places there so slippery that it was dangerous footing, because you have an incline that is saturated and extremely slippery resting on the underneath soil which is hard and compact, but I have never seen that degree of saturation get

(Testimony of P. R. Bradley.)

far enough away from the surface so that the whole foot would go in, so to speak.

Q. By the term saturation, Mr. Bradley, what do you mean?

A. Well, that is rather a general term. Theoretically one means by saturation when a thing has absorbed all the water it can absorb.

Q. In times of heavy rains and when the snow thaws does the hill reach that point at times?

A. It does on the surface. Of course I don't know what is underneath the surface except where we have excavated.

Q. Where you have excavated what were the indications that that had existed during heavy rains.

A. At exceedingly heavy rains we find a maximum amount of moisture immediately on the surface, and, speaking generally, the moisture will decrease as you go down until you approach bedrock, then you will find more water again. There seems to be an intermediate area there that does not get much water.

Q. What would be the effect of that bedrock flow that you observed in this slide area with reference to causing the slide at that point?

A. The bedrock flow has a tendency to cause a slide for the reason that if there is an excavation made in the bank, the only reason that the bank does not slide immediately is because there is a certain amount of frictional resistance between the bank that is lying there and the bedrock, and also the cohesiveness of the mass itself, but if you have

(Testimony of P. R. Bradley.)

a bedrock flow you reduce the frictional resistance of the mass that is lying on the bedrock. [510]

Q. And that would have a tendency to loosen it?

A. That would have a tendency to reduce the friction between the two.

Q. By reducing the friction, what do you mean, Mr. Bradley?

A. The friction in that case is merely the hold that the bedrock has on the overlying dirt. That is one of the things that is holding that overlying dirt there when there is a place down below for it to slide.

Q. And the effect of those bedrock flows or springs would be what, upon the mass with reference to a condition of slide?

A. It reduces the conditions favorable to slide.

Q. By that you mean it would have a tendency to make a slide? A. It would.

Q. What is the condition behind the administration building, Mr. Bradley?

A. The condition behind the administration building, the soil on the hillside there is in a general way about the same as it is where this particular slide took place except I think the separate pieces of rock in the soil are much larger over there.

Q. And what is the ground generally there where you excavated?

A. Well, I don't know what the original angle of the excavation was, but I do know at this time a certain amount of the top has sloughed off and

(Testimony of P. R. Bradley.)

gone down into the bottom. The slope has just sloughed itself off.

Q. What effect does the existence of the foundation have at that point?

A. Well, the foundation of course is a barrier for any slide which might have a tendency to come at a depth deeper than where the surface of the ground meets the wall of the foundation.

Q. Acts like a bulkhead, in other words?

A. Yes; and the general mass—that portion of the excavation which lies above the point where it comes in contact with [511] the wall, that is free to slide.

Q. That will eventually slide unless the building is completed and something put there to hold it, is that right?

A. There is no reason to believe there won't be small slides there.

Q. Do you know about that other slide down towards the 50-stamp mill—did you examine that?

A. Yes, I did.

Q. What caused that slide?

A. That was caused by an excavation.

Q. That excavation, had that been completed at the time of the slide?

A. Yes; that had been completed and we were at work on the foundation for a hoist.

Q. And had you started work on the bulkhead yet?

A. No—there wasn't anything done there—just merely the raw bank.

(Testimony of P. R. Bradley.)

Q. The bulkhead had not been started?

A. No.

Q. What caused that slide?

A. The slide occurred because we took away the support of a certain amount of ground.

Q. And hadn't yet completed a bulkhead?

A. No.

Q. If a bulkhead had been put in there would it have been safe?

A. If we had substituted some support for the ground that we took away the ground would not have moved.

Q. That could have been done in the case of the Koski slide?

A. Yes; we have done that in a number of places around.

Q. Do you know the approximate distance from the flume to Front Street?

A. You mean anywhere along that hillside?

Q. I mean at a point opposite the soda works there, what would be the distance from the flume to Front Street in term of miles—would it be a quarter of a mile? [512]

A. No, it wouldn't be that much. I could judge it by that map, and I should say, according to that map, it would be about 500 feet.

Q. The elevation is 400 feet, isn't it—I mean in an air line, looking up from Front Street?

A. That 500 feet would be horizontal measurement. Of course following up on the slope it might be as much as 700 feet.

(Testimony of P. R. Bradley.)

Q. How high is the flume above the level there?

A. About 400 feet.

Q. If that is a 30 degree angle that would make it about 1200 feet, wouldn't it?

A. No, I don't think so, but I don't know—I am just guessing at it anyhow.

Q. You are only guessing at that—you don't know what it is—all right. Have you examined this trommel screen model here? A. Yes.

Q. Is that a duplicate of the trommel screen that was installed at the penstock at the time?

A. That substantially duplicates the over-all dimensions; it substantially duplicates the two end diameters, and is the same length. Of course it is only a model. The screen on the surface is exactly the same character as the screen on the original. There was no wood work on the original—it was all iron.

Q. These sticks on the original were all iron?

A. Yes.

Q. And this shaft was an iron shaft? A. Yes.

Q. The only difference between the original and this is that this is a model made out of wood whereas the original was made out of iron?

A. Yes, that is about it.

Q. The screen itself is the same?

A. Yes, the same character of screen. [513]

Q. And the size of the model is the same as the original? A. Yes.

Q. And in all respects it is like the original except the wood work?

(Testimony of P. R. Bradley.)

A. Except in the matter of material.

Q. Except in the matter of material, and the material in the screen is the same? A. Yes.

Q. How was that screen fastened, Mr. Bradley, in the original penstock? A. Fastened?

Q. Yes; these posts were not there, were they?

A. No, there were no posts there. The shaft is supported in boxes which rested on horizontal beams.

Q. That is the ends, at each end? A. Yes.

Q. How did the water get into the screen?

A. Came in at this small end, the flume being installed in a piece of sheet iron at that time, had the same curve as the trommel—just a short section.

Q. A spout? A. Yes.

Q. And it spouted in at that end, the end where you are standing—the small end? A. Yes.

Q. At this large end, what did you have at this large end?

A. We had—that large end came right near the end of the penstock, and there was a small sheet iron spout to take away the material that was rejected by the trommel.

Q. That sheet iron spout was under the screen so that the screen looped over it?

A. I don't recall that detail, whether there was any loop there or not. [514]

Q. You know that however it was, it was so arranged that the stuff coming out of the screen would come into the iron spout?

A. Yes, right down at the bottom.

(Testimony of P. R. Bradley.)

Q. And that screen at this end, also, there were no posts there?

A. No; that was supported in a box and rested on a horizontal beam.

Q. And that screen was kept in motion—revolving? A. It was.

Q. By the motor which you have described?

A. By an electric motor.

Q. And the water being turned in at one end screened through the screen, and the moss and leaves and stuff came out the other end, is that the situation?

A. That is the purpose of the trommel and the way it worked.

Mr. HELLENTHAL.—You may cross-examine.

Cross-examination.

(By Mr. RODEN.)

Q. You saw that screen a good many times, didn't you, before the slide?

A. Yes, I have been in the penstock quite a number of times.

Q. Do you now remember the details as to the direction of the spout?

A. No, that detail, I don't just exactly recall how that was.

Q. Now, you spoke about the cut that you had back of your administration building, and just the top of the bank has sloughed there, just a little, hasn't it? A. Yes.

Q. It doesn't amount to anything, does it?

(Testimony of P. R. Bradley.)

A. No, it doesn't amount to anything.

Q. And that has been there a good many years, too, hasn't it? A. I guess since 1913 or '14.

Q. Generally speaking, as you say, there is no danger of any slide on this sidehill unless somebody makes a cut there? [515]

A. Unless there is come disturbance made.

Q. A small disturbance might bring about a slide?

A. Yes; the slide that would result would be in proportion to the extent of the cut.

Q. This slide that you had down there between the slide area and the mill, how much of a cut did you have in there?

A. Oh, I don't remember exactly. Of course I never measured, but I think it was about 10 feet—that is pretty close one way or the other.

Q. Pretty steep, was it?

A. Yes, pretty steep.

Q. Just sloughed in?

A. Oh, well, the stuff came clear back to the tram line.

Q. Sure—moved down? A. Yes.

Q. But the fact remains nevertheless, Mr. Bradley, that when this mass moved down it began to move here, didn't it, at the weakest point?

A. Well, I wasn't there—I didn't see it.

Q. That would be your opinion as a mining engineer, wouldn't it? A. Well, yes.

Q. Sure.

A. Of course it yielded there to make way for the material that came from the back.

(Testimony of P. R. Bradley.)

Q. Yes, exactly; and you are acquainted with a good many cuts on this sidehill, aren't you?

A. I have seen a number of them, yes.

Q. There is practically no house on that sidehill that hasn't more or less of a cut, is there?

A. I couldn't say that because I haven't been behind them.

Q. You are prepared to say that a good many houses that are built on the sidehill have their foundations cut into the sidehill, aren't you?

A. Yes; that is what one naturally does. [516]

Q. You were below when the slide occurred, Mr. Bradley? A. Yes, sir.

Q. And you did not return until two or three days afterwards? A. No.

Q. And as soon as you got back you made an examination of the slide area? A. I did.

Q. And you found what you have called two bed-rock streams there, one of them, you say, was under the letter "D," and I believe the other one was under the letter "S," is that right?

A. That was the biggest, yes.

Q. The other one didn't amount to anything?

A. No; just enough water perhaps to run.

Q. Those streams were running on bedrock, were they?

A. Yes; they had every appearance of coming right out of bedrock; the bedrock appeared just below them, so one would naturally assume they had been running on bedrock and made their appearance there.

(Testimony of P. R. Bradley.)

Q. You don't know the source of those streams, do you?

A. No; I don't know where that water came from except it must have come from a higher elevation.

Q. Isn't it true that there is practically always some water running on bedrock on these sidehills, especially when it has rained or the snow is melting—the natural drainage is on bedrock on a side-hill, like this, isn't it?

A. No, I don't think so. I think most of it goes over the surface.

Q. Then you wouldn't want to tell us that all of this rainwater runs over the surface?

A. No, I am not saying it all runs over the surface.

Q. Or melting snow?

A. No, I am not saying it all runs over the surface.

Q. As a matter of fact the tendency of water, and snow water, is to go down and find its lowest level isn't it? A. Yes. [517]

Q. And the individual particles of snow as it melts, they are not sufficient to form a stream, and they run down and gather until there is a sufficient quantity accumulated to form a stream, isn't that true?

A. As soon as snow becomes melted and becomes water it will run down hill if there is any hill for it to run down—if it is flat it will stay there.

Q. There must be something to conduct it down?

(Testimony of P. R. Bradley.)

A. Gravity will conduct it—all it needs is a means to get down.

Q. In other words what I mean is this, it gets into the surface material and that becomes its medium of conveyance, does it not?

A. The surface is the medium over which it travels.

Q. Sure—the rain doesn't come down and lie on the surface, it rains through the dirt, isn't that true? A. I would say it rains over the dirt.

Q. Cannot possibly get into it?

A. Some gets into it, of course.

Q. And the water that drains along the bedrock certainly must have got down, unless it comes from a spring—must have got down from the surface.

A. Must have got down there or it wouldn't be there.

Q. Sure, and that is the way this bedrock drainage happens, isn't it?

A. No, I wouldn't say that. That water may run down the hillside on solid rock, and when it reaches the point where this dirt slope begins it may continue to follow the bedrock at that point, I don't know.

Q. In other words, the chances are it is not going to come to the surface. This is the sidehill—let's say, for the sake of the argument, that this is nothing but sheer rock, no overbrush, but down here the overbrush commenced— A. Yes.

Q. If the water comes down on the bedrock it is not going to [518] come down and follow the

(Testimony of P. R. Bradley.)

overbrush—it would follow the bedrock, wouldn't it, most naturally?

A. No, I wouldn't say that. The dirt lies pretty close to the bedrock in most places—if there were a small opening for the water to go through, and naturally filled up with the finer particles of clay, it would loose itself up in that. The rock on this mountain-side is badly shattered, and there are more or less fault planes and openings of that character in which water gets in.

Q. You think the rock is badly shattered, do you?

A. In places it is badly shattered, but there are a good many sheer planes in it that might be water channels.

Q. Oh, you and I can agree upon the proposition that quite a little of the natural drainage on this mountain-side follows the bedrock.

A. Oh, I will agree that some of it follows the bedrock. My opinion would be that of course there is some water on the bedrock, but I think as a general proposition the bedrock flow is small compared to the total run off.

Q. You think then that the run off is solely on the surface?

A. I think most of it is on the surface.

Q. Doesn't soak in at all? A. I didn't say that.

Q. Well, to amount to anything?

A. No, not to amount to anything.

Q. Now, when you came back, Mr. Bradley, you gave orders to have these pictures taken just as soon as possible? A. Yes.

(Testimony of P. R. Bradley.)

Q. And they were taken—those snowshed pictures—they were taken on the 7th day of January?

A. I wasn't present when they were taken. I think I got them the next day, and I think they are all marked the 7th, and that is my assumption, that that date is correct.

Q. The fact that that was an extremely heavy rainfall on the 7th [519] day of January was just merely an accident?

A. It was merely an accident. I ordered the pictures taken as soon as possible, and forgot about it until I got the pictures back.

Q. You got back the night of the 4th?

A. I think it was the night of the 4th, yes.

Q. And you examined the place on the 5th?

A. Yes; that is what I did when I started up on the 5th.

Q. On ordinary occasions, ordinary rains, the snowsheds don't show much water, do they?

A. No, I would say in order to show much water it would have to be more than an ordinary rain. We might say we had an ordinary rain yesterday or day before and there was no water on the snowsheds that was apparent. There was some water, of course—there would have to be, that being a gully, but it was not apparent to the eye.

Q. You think that as the tower began to move there as you say it might have done that the wires began to shake or vibrate?

A. Well, that is my interpretation of events there judging from the location of the tower and the way

(Testimony of P. R. Bradley.)

I have seen ground move when it starts to move.

Q. And it would also have a tendency to tighten up the wire, wouldn't it?

A. No, not unless the tower went down hill to some considerable distance; but even so, the sag between two of those Gastineau towers is, oh, I should say, at least 10 feet—that is a very small percentage—that is less than 10 per cent of the span, and so if a tower did slip down hill 2 feet it wouldn't take up much of those sags.

Q. We will put it this way; if the tower began to move, the wires would be tightened up—take out the slack?

A. If the tower moved bodily down the hill, of course that would be the case.

Q. So if it moved a quarter of an inch, theoretically speaking, [520] it would tighten up the wire, wouldn't it?

A. Theoretically speaking, yes.

Q. We have talked about a quarter of an inch several times in this case—for example, there might have been a quarter of an inch abrasion in the trail when you examined it on the 5th of January?

A. Oh, yes.

Q. Sure, that is the quarter of an inch that Mr. Hellenthal asked you about—he limited it to a quarter of an inch—you didn't take your fine instruments along with you to measure that, did you?

A. No.

Q. Might have been $\frac{3}{16}$ of an inch, possibly?

A. Yes.

(Testimony of P. R. Bradley.)

Q. But that is all you did see anywhere above the slide area—between here and the penstock?

A. What is the question, please?

Q. All the abrasion—all the evidence that you noticed between the apex of the slide and the penstock consisted of about a quarter of an inch, or thereabouts, along in here, following the trail?

A. Well, no, I wouldn't say that. I would say that all the evidence I saw in that trail is that the bottom had been freshly washed of fine stuff—the fine stuff was gone. If the bottom had been evenly eroded for half an inch I wouldn't know that—nobody would know it—nobody could tell it. It simply had the appearance to me that the rocks were cleanly washed, and the bottom was free from fine material—just what you might expect if you had washed the bottom of the trail.

Q. Well, right along in here, Mr. Bradley, there was quite a little evidence of wash, wasn't there?

A. There was just that evidence I spoke of.

Q. Not any more than that?

A. No, just the evidence I spoke of. [521]

Q. A quarter of an inch?

A. Oh, I didn't say it is a quarter of an inch—I say just the evidence I spoke of.

Q. Is this a steel tower also, Mr. Bradley, here?

A. Yes, that is a steel tower.

Q. And this here? A. Yes.

Q. How are those foundations constructed, of the steel towers?

A. Each leg is in a concrete pier.

(Testimony of P. R. Bradley.)

Q. There are four legs to a tower, and the legs are set in a concrete pier? A. Yes.

Q. And an excavation is made, I suppose, before that tower is put in there?

A. Oh, yes—they go to the surface.

Q. They go to bedrock?

A. They cannot go to bedrock. I presume they would go to bedrock if it was within easy reach, but they cannot go to bedrock in all places.

Q. They go to where they think it is necessary to go?

A. Yes,—if bedrock is a long ways off it is not necessary to go to bedrock.

Q. Yes, a long ways off. Mr. Bradley, can you tell about the distance—air line distance from the Pacific Coast dock—the old dock, to the penstock?

A. No, I cannot—I can only guess at it from the map.

Q. What is your best judgment on that?

A. You want my judgment from the map?

Q. Yes, approximately, Mr. Bradley, please.

A. From the Pacific Coast wharf to what point—the penstock?

Q. Yes. A. An air line?

Q. Yes. [522]

A. Well, I should say that is about 60 inches, 20 feet to the inch, that would be about 1200 feet, and you have got to take into consideration the elevation there—it might be 1600 or 1800 feet, more or less—something like that.

Q. That is the present Pacific Coast dock, the

(Testimony of P. R. Bradley.)

new dock down here—you know the one I mean?

A. It is the dock—it is the one that was there on January 2, 1920.

Q. Yes—that isn't the coal dock, the old coal dock?

A. No, it isn't the old dock; it is the new one.

Mr. RODEN.—That is all.

Redirect Examination.

(By Mr. HELLENTHAL.)

Q. That would be a little over a quarter of a mile?

A. Yes, that would be over a quarter of a mile.

Q. The Pacific Coast dock is about 200 feet from Front Street, isn't it?

A. Perhaps a little more than that.

Q. Perhaps a little more, but I mean about that?

A. Somewhere in that neighborhood.

Q. And Front Street is about a quarter of a mile,—it would be about a quarter of a mile from Front Street?

A. Yes, I think I calculated it would be about a quarter of a mile.

Mr. HELLENTHAL.—That is all.

(Witness excused.)

(Whereupon court adjourned until 2 o'clock P. M.) [523]

AFTERNOON SESSION.

March 29, 1921, 2 P. M.

Testimony of John Richards, for Defendant.

JOHN RICHARDS, called as a witness on behalf of the defendant, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. HELLENTHAL.)

Q. You may state your name.

A. John Richards.

Q. What is your profession, Mr. Richards?

A. Superintendent of the Alaska Juneau Company.

Q. I say your profession. A. Mining engineer.

Q. Do you know the Alaska Juneau Gold Mining Company? A. I do.

Q. What position do you occupy with that company? A. Superintendent.

Q. How long have you occupied that position?

A. Since September, 1914.

Q. How long have you followed the occupation of mining engineer?

A. I have been mining the greater part of my life—since I was a young man.

Q. Mining in some capacity practically all of your life? A. Practically all my life.

Q. Now, Mr. Richards, before I forget it, you have seen this model of the trommel screen?

A. I have; yes.

(Testimony of John Richards.)

Q. That is a correct model of the original that was installed at the penstock at the time of the slide? A. It is.

Mr. HELLENTHAL.—I offer this in evidence, if your Honor please.

Mr. RODEN.—No objection. [524]

(Whereupon the model of the trommel screen was received in evidence and marked Defendant's Exhibit No. 9.)

Q. Now, Mr. Richards, you are familiar with the properties of the Alaska Juneau Company?

A. Yes.

Q. With the mine and the mill and all other matters connected with both the mine and the mill?

A. Yes.

Q. Familiar with the water system? A. Yes.

Q. And with the devices used in connection with the carrying of water? A. I am.

Q. And all those things? A. Yes.

Q. You were familiar with those things at the time this slide occurred? A. Yes.

Q. And had been for some years prior thereto?

A. Yes.

Q. Do you know how much water was flowing in the flume of the Alaska Juneau Company above the penstock two days before the slide? A. Yes.

Q. How much water was flowing in it?

A. An average of about 2 inches in depth.

Q. How much was let in at the regulating gate?

A. The regulating gate was raised from the bottom of the flume one inch.

(Testimony of John Richards.)

Q. And the water behind it would force it to the extent that there would be 2 inches below the regulating gate? A. Yes.

Q. About 2 inches. Now, Mr. Richards, Mr. Bradley just suggested that you explain the position of the regulating gate—where [525] is the regulating gate situated?

A. The regulating gate is situated about 250 feet north of what is known as the north portal of No. 3 tunnel—that is the tunnel that goes through Mount Roberts.

Q. What is the reason for putting it at that particular place?

A. The reason for putting it there is to have it as near the tunnel as possible, and also to let what water we didn't use overflow and go back down into Gold Creek again.

Q. What connection, I want you to explain to the jury, is there between your regulating gate and the intake of the Alaska Electric Light and Power Company's flume?

A. It is directly on the side hill above the intake of the Alaska Electric Light and Power Company's flume, and any water that we do not require is turned out of the side of the flume a short distance above this regulating gate and runs down to the Alaska Electric Light and Power Company's intake.

Q. And it was as far down as you could put it and still get the water into the Alaska Electric Light and Power Company's intake; is that it?

(Testimony of John Richards.)

A. Yes, sir.

Q. And the Alaska Electric Light and Power Company have the first right to the water?

A. As I understand it.

Q. Except that you get your boiler feed water?

A. Yes; we claim the boiler feed water.

Q. How much water is required for boiler feed?

A. I couldn't say how much is required, but we have a 4-inch line that is running to the power plant.

Q. What I mean to say, Mr. Richards, is how much water do you allow to run into the tunnel where it is used for boiler feed purposes only?

A. About 2 inches of water, that I referred to a short while ago that was in the flume.

Q. That was for boiler feed purposes only? [526]

A. Yes.

Q. And that water running in the flume furnished no water in the mill?

A. That might not all be used in the power plant, and if it isn't used it would go to the mill.

Q. But generally speaking—of course a few drops might go to the mill, but what I mean is not whether a few drops would get to the mill, but whether it would supply the mill with water?

A. Oh, no, no.

Q. And that was the quantity running in two days before the slide?

A. Yes; that was the quantity running in for several days before the slide.

Q. How was it the day before the slide?

(Testimony of John Richards.)

A. The same amount.

Q. And that was as to the entire day before the slide? A. Yes.

Q. And also two days before the slide?

A. Yes—quite a long time before the slide—I don't exactly know how long.

Q. Don't know the exact number of days, but for some time before the slide that was all the water that was running in the flume? A. That was all.

Q. How long did that condition continue—how long was it that there was no more than that amount of water running in the flume with reference to the time when the slide occurred?

A. That condition existed until about 8 o'clock or shortly after.

Q. Eight o'clock or shortly after of what day?

A. On the morning of January 2, 1920.

Q. Prior to 8 o'clock on the morning of January 2d the water flowing in the flume that leads into the penstock did not exceed 2 inches in depth in the flume? A. That is correct.

Q. Now, on the morning of the slide, when did you come to the works? [527]

A. Oh, I came over and got to my office about a quarter to seven.

Q. What did you do after you got there—I don't mean with your little detail work, but I mean with reference to matters involved here?

A. About 8 o'clock or shortly after I got at the regulating gate in the flume.

(Testimony of John Richards.)

Q. You went up to the regulating gate in the flume? A. Yes.

Q. Now, at that time, prior to 8 o'clock that morning, how was the mill supplied with water?

A. They were being supplied with water by our salt-water pumping system.

Q. How much water were you pumping?

A. About 3,000 gallons per minute.

Q. And that water was pumped into what is called the mill tank on that Exhibit No. 2?

A. That was taken from Gastineau channel and pumped into the pipe system and into the mill tank.

Q. Now, what, if anything, did you do at about 8 o'clock, or shortly thereafter, in the way of changing that situation?

A. I raised the regulating gate to a height of 7 inches.

Q. How much water would that furnish you?

A. That would furnish about 3000 gallons per minute.

Q. About the same amount the mill was using?

A. Yes.

Q. So that the salt-water pump could be shut down? A. Yes.

Q. When you got to the regulating gate on that occasion how did you find the gate?

A. The gate was one inch.

Q. One inch from the bottom? A. Yes.

Q. Then you raised it to what extent?

A. I raised it to 7 inches. [528]

(Testimony of John Richards.)

Q. And that would give about how much flow in the flume?

A. That would give about 9 inches in the flume.

Q. That would give about 9 inches in the flume?

A. Nine inches in depth.

Q. The pressure as the volume went up didn't force as much water through as it would when it was only an inch open?

A. No, the head above the gate was a little higher than the water in the flume on this side of the gate.

Q. And what was in excess there spilled over?

A. Yes, the excess water went over the side and continued down the creek.

Q. That belonged to the Alaska Electric Light and Power Company? A. Yes.

Q. Prior to that time had there been enough water in the flume to supply the Light Company and furnish you with any water for the mill?

A. No.

Q. Then after you opened the regulating gate what did you do—where did you go?

A. I came back through the No. 3 tunnel, along the railroad track, and back to the mill.

Q. At that time did you stop at the trommel screen? A. I did not.

Q. Not at that time. Now, going through the mill where did you go to?

A. I went through the mill to the different floors, and then stopped at the mill office.

Q. Then where did you go?

A. After leaving the mill office I went down to my

(Testimony of John Richards.)

own office, down around the wharf warehouse, and different places.

Q. Went about the works? A. Yes.

Q. How long would it take the water to get from the regulating gate to the mill—that is, to the penstock? [529]

A. The amount of water that I turned in?

Q. I am speaking about how long it would be before any water would come through?

A. That depends on the volume—the amount of water that is turned in.

Q. I am speaking now of the conditions that existed that morning.

A. Some of the water would probably get through the No. 3 tunnel in 25 minutes.

Q. How long would it be before the whole head would get through?

A. Be anywhere from an hour to an hour and a half.

Q. There would be some water a long time before the whole head would come through?

A. Oh, yes.

Q. Then about half-past nine there would be water at the mill tank—that is, sufficient water to shut down the pumps?

A. Yes; at half-past nine there should be an equal amount—there should be just as much water coming into the mill tank as was turned in.

Q. Prior to that time there would be some water?

A. Yes; the water would gradually increase.

Q. Now, at about half-past nine where were you?

(Testimony of John Richards.)

A. At half-past nine, or thereabout, I was in the shed which leads from the street to the mill.

Q. Where were you going?

A. I was going to the mill.

Q. Going to the mill from your office?

A. Yes.

Q. Before that time you had been in your office?

A. Yes.

Q. Now, what, if anything, did you observe at that time in the way of flashes?

A. Well, I observed a very bright flash and also heard the report from the same.

Q. In what direction was that flash from where you were? [530]

A. Well, it appeared to me to be coming from a northwesterly direction. The reason why I thought it was coming from a northwesterly direction, in the shed that goes from the street to the mill, on the northwesterly side there is one board that is taken off of the shed its whole length and this flash appeared to come in from that side.

Q. Now, can you point on the map, Mr. Richards, to the place where that shed was situated?

A. The shed comes up here and right up here to the lower part of the mill, marked as "Stairway to mill."

Q. It is marked as "Stairway to mill," on the plat? A. Yes.

Q. And that shed covers the stairway?

A. Yes, that shed covers the stairway.

Q. And the northwesterly direction would be in the direction towards—

(Testimony of John Richards.)

A. Would be on this side, yes.

Q. At about that same time what did you observe with reference to power conditions in the mill?

A. Well, I didn't observe anything in the mill at that time.

Q. How long afterwards—

A. Well, it was shortly afterwards that I knew there was some power trouble on the line connecting the compressor—that was the first intimation I had of something being wrong with the power.

Q. It was right after that flash that you learned there was trouble in the mine compressor?

A. Yes.

Q. How was the mill—did you learn later about power disturbances there?

A. Yes; I found out later there had been power disturbances in the mill.

Q. That was the only flash, I believe, that you saw yourself, Mr. Richards? [531]

A. That was the only flash that I remember seeing, Mr. Hellenthal.

Q. Now, after that where did you go, or what did you do in the way of shutting off the salt-water pump, if anything?

A. After I got to the mill I discovered that there was an overflow from the mill tank and the salt-water pump was shut down.

Q. There was an overflow at the mill tank and you ordered the salt-water pump shut down?

A. Yes.

Q. That was about half-past nine, would you say, Mr. Richards?

(Testimony of John Richards.)

A. It was around there—may have been a few minutes after.

Q. Might have been a little later?

A. It was near 9:30, yes.

Q. From that time on did you use any salt-water in the mill that day? A. No.

Q. The mill was supplied with fresh water through the fresh-water system? A. Yes, sir.

Q. And the salt-water pumps remained shut down? A. Yes.

Q. Then what did you?

A. I went around the works.

Q. You went around about the works? A. Yes.

Q. When, if at all, did you again visit the regulating gate?

A. Oh, I returned to the regulating gate somewhere about 10:30.

Q. About 10:30?

A. Yes; may have been a little later than 10:30, but somewhere about that time.

Q. The regulating gate would be a considerable distance to the northwest of the extreme right-hand side of the map?

A. The regulating gate is about 2500 feet north of what is known as the penstock—about 2500 feet north of there in the direction that the tunnel is running up on the map. [532]

Q. Do you know where those lights are in the tunnel? A. I do.

Q. Where are they situated? Describe to the jury so they will understand what they are for.

(Testimony of John Richards.)

A. There is three sets of lights right where the two tunnels come together, and they were put there for the purpose of lighting that portion of the tunnel because the men coming from town and going up the trail get on the cars at that point to be taken into the mine, and the lights are there for that purpose, to enable them to get on and off the cars.

Q. When you went through the tunnel at that time were the lights on or off?

A. They were on at that time.

Q. Then where did you go,—did you proceed on to the regulating gate?

A. Yes, I went to the regulating gate.

Q. How did you find the regulating gate at that time?

A. The regulating gate was in the same position I had placed it in that morning.

Q. Nothing unusual about it?

A. Nothing unusual about it then.

Q. It was open how wide? A. 7 inches.

Q. The flow was how much—about 9 inches?

A. The flow in the tunnel was about 9 inches between the flume and the regulating gate.

Q. Above the regulating gate?

A. Above the regulating gate I didn't measure it, but I know it was deeper—about 10 to 12 inches.

Q. Where did the surplus water go to that didn't pass down the flume?

A. That passed out the side of the flume a matter of a foot or so above the regulating gate.

Q. What did you have there to permit it to pass at that time? [533]

(Testimony of John Richards.)

A. There is an opening cut in the flume about 30 inches wide, and it is so arranged that a stopper could be put in, or you could fill that opening right up with a series of boards.

Q. It was a spillway?

A. Yes, a regular spillway.

Q. An ordinary spillway, is that it?

A. That is it.

Q. All right. On your way back towards the mill on that occasion you again passed the place where these lights are? A. I did.

Q. How were the lights—were they on or off?

A. They were burning as usual.

Q. Then did you stop at the trommel screen?

A. I did.

Q. Did you go into the trommel-screen house?

A. Yes.

Q. What, if anything, did you do in the way of examining conditions there?

A. I looked over everything there—looked over the trommel and everything thoroughly.

Q. Was the trommel revolving? A. It was.

Q. Was there any water coming out of the spout that is designed to carry off the leaves to the outside of the house? A. There was not.

Q. There was no water coming out?

A. No, no water was coming out.

Q. All the water was passing through the screen?

A. All the water was passing through the screen into what is known as the penstock.

Q. And finding this was all right you went to the mill? A. Yes, sir.

(Testimony of John Richards.)

Q. That was about what time? [534]

A. That was about 10 minutes to eleven.

Q. How do you now fix the time as being about 10 minutes to 11?

A. The reason the time is so plain to me, I had to go to town that morning, and I wanted to come up town before dinner, and in getting down to my office I went by the way of the railroad track to the head of the wharf incline, and the hoist man at that place leaves there at 11 o'clock, and I know that I barely had time to get to the incline and be lowered down on the car.

Q. Before he went off duty?

A. Before he went off shift, or before he went to dinner.

Q. Did you get there in time to be lowered at that point? A. I did.

Q. Point out to the jury where that was on the map?

A. I came along on the railroad track here and got on the car at this point. The hoist is situated back in here—I got on the car and was lowered down this incline to the street.

Q. And that was before that man went off shift?

A. That was a few minutes before the hoist man went off shift.

Q. Where did you go then?

A. I went to my office.

Q. After you had gotten into your office that morning did you notice anything in the way of electric disturbances on the lighting system?

(Testimony of John Richards.)

A. Yes; I noticed that the voltage dropped and the lights became low.

Q. Flickered?

A. Yes, flickered, and went down and came back up again.

Q. Went down and up. How long did you remain in the office, Mr. Richards, at that time,—that is, if you know?

A. I don't know exactly. I know that I went around some—whether that was before I went into the office, I don't remember—I know I went around the wharf, around the dock, and walked around the different places, and I don't know exactly [535] how long I stayed in there—probably 5 or 10 minutes.

Q. Probably longer?

A. It might have been longer.

Q. You left the office and went where?

A. I left the office to go up town.

Q. And that would be approximately about what time?

A. Oh, that would be probably 15, maybe 20 minutes after 11.

Q. 15 or 20 minutes after 11—somewhere around there?

A. Somewhere around there—I couldn't say to the minute.

Q. On your way uptown did you stop anywhere?

A. I went in the power plant on the way up town.

Q. How long did you stay in the power plant?

A. May have stayed in the power plant a matter

(Testimony of John Richards.)

of minutes—may have been in there from three to five minutes.

Q. You don't remember?

A. I don't remember—I know I was in there only a short time—I couldn't say whether it was 3 minutes, or it might have been 7 or 8 minutes.

Q. You went from there where?

A. I went up town then.

Q. You continued on your way to town?

A. No, I went in the vicinity of the sawmill boarding-house and that is as far as I got.

Q. Whom, if anyone, did you meet there?

A. I met Earl Higgins.

Q. Who is Earl Higgins?

A. He is our chief electrician.

Q. Then did you continue on your way after meeting Higgins, or did you go back?

A. No, I returned with Higgins.

Q. Why did you go back at that time?

A. Because Higgins had informed me that a slide had occurred and had taken out several houses and apparently had buried up or killed some people—considerable damage done; and he also [536] informed me that there was water coming through the trommel screen and coming down over the slide.

Q. Over the slide? A. Yes.

Q. Then what did you do?

A. I beat it back as quick as I could to get to the office.

Q. What did you do after you got to the office?

A. Immediately on arriving at the office I tele-

(Testimony of John Richards.)

phoned to the compressor man to have all the water shut out of our flume.

Q. What else did you do?

A. Right after that I phoned to Mr. Clauson in the mill and told him what I had learned in regard to the slide and asked him to proceed immediately to the trommel screen and see if there was anything wrong there, and to size up conditions there, and to see what he could find.

Q. Who is Mr. Clauson?

A. Mr. Clauson is our mill superintendent.

Q. And after telephoning Mr. Clauson to that effect what did you do?

A. I went over then to the mill incline and got on the car there and went up on that car, and went to the trommel screen myself.

Q. Where is the mill incline, Mr. Richards?

A. The mill incline starts right here, and runs up to the upper part of the mill, or up to the crushing floor of the mill.

Q. And from there you walked up to the track?

A. Yes.

Q. And from there did you proceed to the trommel screen?

A. Yes, I went right over to the screen at that time.

Q. When you got to the screen was the water spilling over? A. It was not.

Q. It had been stopped?

A. There was no water running over the screen when I got there.

(Testimony of John Richards.)

Q. At that time did you make an examination to determine or [537] see whether there had been any water running?

A. Well, I looked over the whole situation right from the trommel screen down to the head of the slide.

Q. Did you find any evidences that water had been running out of the spout at the trommel screen?

A. There was a slight evidence that water had overflowed there.

Q. What evidence did you find, Mr. Richards?

A. The evidence that I found was simply the brush—there is a lot of blueberry bushes there, and small growth, some coarse grass, which had been bent down the hill, and there was also some leaves and pine needles and debris that had been discharged from the trommel screen at some time, and that in turn had been carried down and was scattered along over the brush.

Q. So you could see where the water had run?

A. Could see that some water had run over there.

Q. Was there any cut in the ground, or anything to show that the water had scoured the ground itself?

A. No, there was no cut in the ground at all.

Q. No evidence of scour then?

A. None whatever—nothing of a cut.

Q. Did you follow or trace the water down the hill at that time? A. Why, yes, I did.

Q. How did the water run? Can you point with the pointer on the map where the water ran to?

(Testimony of John Richards.)

A. Yes; apparently the water came out of the spout here and took a course right over in to about here; and then followed the trail right down here—some came both ways here, came down to that point—from that point I didn't pay much attention to the water, but I noticed there was some evidence there that some water had left the trail and had went in over the slide area.

Q. That is right above where the slide occurred?

A. Right above the slide. [538]

Q. What evidence was there that water had spilled over there, Mr. Richards?

A. Just practically the same evidence as I have stated. There was no brush through there—it was all grass—that was matter down and laying down-hill, and there was a few leaves and some sand and fine gravel laying in that grass, to the head of the slide.

Q. Was there any cutting there?

A. There was no cut there at all.

Q. Was there any cut at any place in the vicinity of the spout where the water had struck the ground?

A. No, sir.

Q. Nothing at all? A. No.

Q. Now, that morning, Mr. Richards, did you observe any water running over the snowsheds and shooting off from the flume level—you know where the water shoots over there?

A. Right at the portal of the old No. 3 tunnel?

Q. Yes.

A. Yes, there was water running over that portal that morning.

(Testimony of John Richards.)

Q. That is along the course marked Portal Gulch on Exhibit No. 2? A. Yes.

Q. Where those sheds are how much water was there running over those sheds that morning?

A. There was quite a lot of water—I couldn't exactly say how much—there was several streams of water running there.

Q. As they emerged from the flume level how many streams were there, or did it show up as only one stream?

A. It united there more or less, when it struck the flume, and as it glanced from the flume it was more than one stream.

Q. Have you ever observed that water flowing there on occasions when there were heavy rains, from the street?

A. I have a number of times. [539]

Q. How does it look from the street, Mr. Richards,—where does the water seem to come from when you are looking at it from the street?

A. It would seem to be coming from the flume, is where the water would seem to be coming from if a person didn't know.

Q. Do you know how it appeared to any one that didn't know about the situation up there?

A. There has been several occasions, Mr. Hellen-thal—

Mr. RODEN.—Wait a minute. We object to the question because it is entirely hypothetical, based on no facts—as to how it would appear to somebody who don't know anything about it. He don't

(Testimony of John Richards.)

know how it would appear to anybody who didn't know anything about it.

The COURT.—The question is almost impossible to answer with any degree of accuracy. It might appear one way to one person who didn't know, and another way to another person who didn't know.

Q. You may answer that question yes or no, if you know how it would appear to any one not familiar with the situation? A. I do.

Q. How do you know?

A. Because there have been a number of occasions when your office was notified that our flume was running over, and upon investigation I found the flume was not running over—it was water running at this point, and it was taken to be running from the flume.

Q. Now, you are familiar with the penstock construction, Mr. Richards? A. I am.

Q. And know how the pipe leading from the penstock runs, to where it runs, and how it runs?

A. Yes, sir.

Q. And as to the volume of water it would carry?

A. Yes.

Q. As compared to the volume of water that can enter the penstock? [540] A. Yes.

Q. How much water will the pipe carry as compared to the water that will go into the penstock?

A. It will carry over twice as much.

Q. Under those conditions is there any occasion for the establishing of a spillway at the penstock?

A. There is not.

(Testimony of John Richards.)

Q. A spillway could serve no purpose there whatever? A. Serve none—it would be useless.

Q. Have you a spillway to take care of your surplus water when you get more water than you need?

A. We have.

Q. Where is that spillway?

A. That is situated at the mill tank.

Q. Now, at the mill tank what becomes of the waste water there?

A. The overflow or spill from the mill tank is carried by a flume down to the tailings flume to help pass the tailings along.

Q. It is put to use? A. It is put to use, yes.

Q. Not wasted. Now, do you know how the ground drains in the vicinity of the spout there—what the natural drainage is? A. I do; yes.

Q. What is the natural drainage?

A. The natural drainage is where it is marked on the map as “natural drainage.”

Q. Have you ever seen that water going in that direction from the spout when the spout overflowed?

A. I don’t recall ever seeing the spout overflow, Mr. Hellenthal.

Q. You don’t remember of ever having seen the spout overflow? A. No.

Q. Do you recall ever having traced the water down there when the spout had overflowed?

A. No.

Q. Or don’t you remember? A. No. [541]

Q. The ground, however, Mr. Richards, at that point indicates to the eye where the drainage is?

A. Yes, the contour lines show that.

(Testimony of John Richards.)

Q. And if you were on the ground could you see it? A. You could see it plainly, yes.

Q. Could the water coming from that spout, flowing down that natural drainage, could that harm anybody—was that a safe place to let the water run off or run through?

A. It was a safe place to let it run—it could do no harm.

Q. Now, Mr. Richards, what, if any, devices did you have in the mill at the time of this slide, to notify those in the mill of the condition of the water at the mill tank?

A. There was an indicator which was operated by a float; the float was in the mill tank, and a line went from that float over a couple of balls; and there was an indicator or a pointer that was on a chart or a board which had the feet marked on it; so as the water would rise or fall in that tank the float would rise or fall with it, and would bring this indicator up and down, and would point and indicate the number of feet of water that was in the tank. Now, if the water dropped down to—Oh, I am not positive of the point, but if it dropped down beyond a certain point that flashed a red light, and when the tank was full there was a green light burning—there was some electrical apparatus there so the contact was made when the pointer would get at certain points; and as soon as the red lights were on the mill man knew there was a shortage of water. There was also another apparatus rigged up, which I am not very familiar with, which rang a bell.

(Testimony of John Richards.)

However, I couldn't explain that because I am not familiar with it.

Q. The electrician knows more about how that was connected? A. Yes.

Q. If there was a break in the flume or any water spilling over at the trommel screen, or any water escaping anywhere on [542] your flume line, would that become evident in the mill?

A. That would become apparent just as soon as it would occur, yes.

Q. Give you notice at once. What was the necessity of keeping the water steady in the mill?

A. Well, they need a steady flow there for milling purposes. If the pressure goes up or down, their flow fluctuates, and gives them considerable trouble.

Q. The solutions are lost in that case? A. Yes.

Q. Now, you are familiar, Mr. Richards, with the character of the hillside below the penstock?

A. Oh, yes.

Q. And also familiar with the character of the soil at the point where the slide occurred?

A. Pretty familiar, yes, sir.

Q. The soil conditions on that hillside, how do they compare with conditions on the hillside generally in this neighborhood?

A. Not much difference.

Q. What would be the effect of running water upon that hillside if a volume that would run through a 12-inch box, or even a larger volume, were turned loose at the penstock and permitted to run down—turned loose anywhere, through an open-

(Testimony of John Richards.)

ing in the flume or a spout in the penstock, or some place like that?

A. In my opinion it would cut a gutter, or channel, for itself.

Q. And would it soak in?

A. Not to any great extent; no.

Q. The steepness of the hillside would prevent that? A. Yes.

Q. What would the water do—where would it flow?

A. The water would flow downhill, naturally, until it got down into the channel.

Q. Find its lowest level? A. Yes.

Q. If there were no trail above that slide area there, and no [543] snowbanks or anything else to divert the water—conditions were perfectly natural, and water came out of the spout, where would the water run to?

A. If there was no trail there, and everything was perfectly natural, it would come down the gulch I would say.

Q. Would there be any possible way for it to run in the direction it ran on this occasion?

A. I think not.

Q. There is a gulch on each side of that ridge?

A. Yes.

Q. And the water on this occasion came down the ridge?

A. Came down what is known as the hog-back.

Q. Do you know what the effect is of making a cut or excavation in the banks on this hillside?

(Testimony of John Richards.)

A. Yes.

Q. And what results when you make an excavation in the bank and leave it without a bulkhead?

A. Slides invariably occur.

Q. Is there any way to tell how soon a slide will occur? A. I don't think so; no.

Q. It will occur sooner or later?

A. It might occur soon or it might stay a long time before anything would slide.

Q. When slides occur on a hillside of that character, does the slide material move rapidly or slowly?

A. My observation—anything that I have seen moving, whether it is ground on the side hill, or whether it is solid rock or anything else, it does not move rapidly. At first there is generally some sign of creeping—a slight movement at first.

Q. And it is how long generally before it precipitates itself down the hillside?

A. That is hard to determine. It might slip—might be some movement there to-day and it might come to rest and it might [544] not move again for two or three days—it might be a week, or it might be a month.

Q. In any event it would creep along slowly before it would be precipitated downhill?

A. Yes, and naturally when it would start you might expect it would go further later on.

Q. Are you familiar with the hillside above the flume level, Mr. Richards?

A. To a certain extent, yes.

(Testimony of John Richards.)

Q. Are you familiar with that part of the hillside which lies above the place where the penstock used to be?

A. Yes, I am familiar with that—that is, as far as a person could go up there, or as far as you could look up.

Q. You have been up there as far as you can go?

A. I have been up as far as I can go.

Q. And made an examination? A. Yes.

Q. What did you find there in the way of conditions—whether that ground there is safe ground or otherwise?

A. I wouldn't consider it safe ground. I have known large boulders to come down there and make deep impressions along the bank there and take out part of the trail, and have known rocks to slide down there—I wouldn't consider it a safe condition.

Q. What is the condition of the soil mass up there?

A. Above the trommel screen there might be some soil in the gulches for probably a hundred or maybe two hundred feet above that—it hasn't much soil—straight bluffs.

Q. What, if anything, happened in the way of a slide occurring at that point during the summer of 1920?

A. Well, there was a large boulder came down there and came right immediately behind the penstock and the change room, which is marked on the map, and went right underneath the flume and between the two bents in the trestle. [545]

(Testimony of John Richards.)

Q. How large a boulder was that?

A. Well, I would say from the—I didn't see the boulder, but from the impression that it made in the ground I would say that it would be a boulder that weighed probably 1500 pounds or more—a ton—maybe more.

Q. Do you remember the occasion when Mr. Dudley was up there? A. I do.

Q. When was the time that boulder slid down there with reference to the time Mr. Dudley was up there?

A. That was just shortly before Mr. Dudley was there.

Q. You pointed it out to Mr. Dudley? A. I did.

Q. Just one question to be sure that I have it in the record. At the time you saw the flash that you saw from the stairway, is that the time the power went out in the mine?

A. I think that is the time that the power went out in the mine, yes,—I know it was somewhere around 9:30.

Q. At that time the power went off at the compressor in the mine?

A. At that time the power went off at the compressor in the mine and that shut the air off from the mine.

Q. The other power remained on?

A. Yes, the electrical power remained on.

Mr. HELLENTHAL. — That is all; you may cross-examine. [546]

(Testimony of John Richards.)

Cross-examination.

(By Mr. RODEN.)

Q. Now, Mr. Richards, when you examined the ground below the penstock after you went up there and after the slide, you saw evidences of where water had been, I understood you to say, the same as the other witnesses, along about in here?

A. Yes, I said that I saw evidences of water coming over that way.

Q. And it was the fault of the trail that the water did not run down the place marked here "Natural Drainage"?

A. I didn't see whether any water run down there or not.

Q. Yes, but it should have run down this way, shouldn't it—that is the natural drainage?

A. That is the natural drainage.

Q. The water was somewhat refractory and obstreperous and went over the hill?

A. It may have been.

Q. And that was the fault of the trail?

A. As I say, there was evidence of water coming down that way—I don't know why it came that way.

Q. That day at least we know it did not follow the natural drainage?

A. Well, the water that came that way did not follow the natural drainage.

Q. Yes, that is what I want to get at. You say that you know how the water coming from those snowsheds, off from the penstock, would look to

(Testimony of John Richards.)

people standing on Front Street, do you?

A. Well, from the intimation that we had, being telephoned that there was water coming from our flume and on investigation we found that there was no water coming from the flume but it was coming over the snowshed.

Q. Now, how did it look to Higgins when he told you that the water was coming from the penstock?

A. You will have to ask Higgins that—I don't know how it looked to Higgins. [547]

Q. You said you knew how it looked to people who were on Front Street—there is one man that you don't know how it looked to?

Mr. HELLENTHAL.—I object to that as not cross-examination.

The WITNESS.—I didn't say I knew how it looked to Higgins.

Q. You said on your direct examination you knew how it looked to a man standing on Front Street, and I am trying to get you to give me the name of one single man who told you how it looked to him.

A. Well, I have told you the reason I thought it looked to people that it might be coming from the flume. I am telling you that we were telephoned to—

Q. You don't want to answer my question, is that right? Give me the name of one single person who told you how it looked to him from Front Street.

A. I can give you the name of the person who telephoned to me and said it was coming from the flume when it was coming from the snowshed.

(Testimony of John Richards.)

Q. I want you to give me the name of a single man who told you how the water looked to him from Front Street.

Mr. HELLENTHAL.—The witness hasn't testified that anybody that stood on Front Street told him how it looked. That is the difficulty with the question.

The COURT.—Yes, Mr. Roden, I think the witness' testimony is simply that it must have appeared to people that the water which was coming over the snowshed was coming from the flume because they had notified the company that water was coming out of the flume and upon investigation they found it was coming over the snowshed. If you ask him the name of a single person who did that, of course that question would be right in line.

Mr. RODEN.—That is what I am going to do in the next question.

The COURT.—Your question was to give the name of some person who looked at the water from Front Street and said it was coming from the flume when as a matter of fact it was coming from the snowshed.

Q. Tell us the name of anybody that telephoned to you. [548]

A. I don't know who telephoned—I don't recollect who telephoned, but I can give you the name of a person who told me water was coming from the flume.

The COURT.—Then why don't you do it? The

(Testimony of John Richards.)

name of anybody who telephoned, or talked, or anything else.

A. Nels Sorby.

Q. He told you water was coming from the flume and it was coming from the snowsheds?

A. Yes.

Q. More than once he told you that, I suppose?

A. Yes.

Q. Nels Sorby lives right below, in what is known as the Sorby apartments, don't he? A. Yes, sir.

Q. And if he goes out of his way a little he can see the snowsheds very plainly?

A. He should be able to.

Q. And a man on Front Street could very well tell whether that water was coming over the snowsheds or coming out of the flume, couldn't he, if he had his eyesight at all?

A. Well, I would know whether it was coming from the flume or coming from the snowsheds.

Q. So would anybody else that looked up on the sidehill, wouldn't they? A. I wouldn't say that.

Q. On this particular day, Mr. Richards, there was quite a bit of water coming over the snowsheds, wasn't there?

A. There was some water coming over the snowshed.

Q. Was there as much water coming over the snowshed that day as this picture shows?

A. I think there was.

Q. Do you remember how the rain was on the morning of the 2d?

(Testimony of John Richards.)

A. I remember exactly, or as near as it is possible for a person to remember.

Q. How did it compare with the average rainfall?
[549]

A. I have seen it rain harder than it did on the second.

Q. You have seen it rain a great deal harder, haven't you? A. Yes.

Q. It was raining a great deal harder, wasn't it, when that picture was taken than it was on the 2d?

A. I wouldn't say that.

Q. It was the heaviest rain in 20 years except the rainfall in September, 1918; isn't that right?

A. I have been in Juneau over 20 years, and I have seen it rain harder than that.

Q. On the morning of the 2d you got to your place around the works shortly after seven o'clock?

A. Yes.

Q. You have everything that you did that morning figured out to the second, haven't you?

A. No, I think not. There were probably a hundred and fifty things I did that I haven't mentioned.

Q. At 9:30 you went to the mill?

A. Somewhere about 9:30.

Q. And at 10:50 you were at the penstock to look at the trommel? A. Yes.

Q. And at 11:15 you went into the power plant?

A. I wouldn't say exactly 11:15.

Q. The way you have it figured out it comes out exactly so that you were at the penstock looking at

(Testimony of John Richards.)

the trommel screen when nobody else was up there. doesn't it?

A. How is that? I didn't get your question.

Q. I say there never was anybody else around the trommel screen there, and the slide, when you were up there?

A. There was nobody else around there, you say?

Q. Yes. A. I don't know.

Q. You didn't see anyone?

A. No, I didn't see anyone there. [550]

Q. You are the superintendent there, aren't you?

A. Yes.

Q. You have a watchman looking after that flume, haven't you? A. We have a flume-tender.

Q. And he takes in the penstock as well as the rest of the flume, doesn't he?

A. He takes in from the penstock on to the intake of the flume—on to the dam.

Q. Early in the morning you began running up the hill to the regulating gate on the flume, didn't you? A. I didn't say that I ran up there.

Q. You went up there?

A. I went up there, yes.

Q. That was around 8 o'clock or so?

A. Around 8 o'clock.

Q. Then you came back? A. Yes.

Q. And attended to some business down around the plant, and later on that same morning you went back to the gate again? A. Yes.

Q. Is that the occupation which you follow down

(Testimony of John Richards.)

there as superintendent, to turn the sluice-head up there?

A. It was my occupation that day—or part of it.

Q. The whole morning of the second,—let me put it this way, I won't say the whole morning, but most of the morning of the 2d you devoted to running up to the gate, 2500 feet from the penstock approximately, through the tunnel out on the flume to where the gate was located, down to the mill, and knowing how your gate is regulated, an hour and a half or so later you run up there again to see if it is still there and you find it there? A. Yes.

Q. And then you come back and take a look at the trommel screen, and everything is in fine order there; then you go back to the [551] plant, and that is the way you put in most of your time that morning, isn't it? A. It didn't take all morning.

Q. It took a good deal of the morning?

A. It took some time; yes.

Q. And that is what you did as superintendent of an eight thousand ton plant?

A. I have told you what I did, yes.

Q. Of an eight thousand ton plant?

A. By doing that I was able to save for the company about a hundred dollars a day, and I thought it was right for me to do that.

Q. The flume-tender couldn't do that?

A. I couldn't get in touch with the flume-tender.

Q. Not at once, but couldn't you get in touch with the flume-tender on the phone?

A. I might if he was around the telephone—he

(Testimony of John Richards.)

don't carry a telephone around with him.

Q. You had other men working on that flume line on this day, didn't you?

A. Not that morning—there was only the one man.

Q. Wasn't Kelly working on that flume line or in the tunnel? A. Kelly worked there later on.

Q. And Kelly works for three and a half a day, I suppose? A. No.

Q. There were other men working there, weren't there?

A. There were some working down along the track that afternoon.

Q. That morning, you mean?

A. Well, that morning, yes.

Q. Whom you could have reached prettily easily by telephone?

A. No, I couldn't reach them easily by telephone—they were some 3,000 feet—between 2,000 and 3,000 feet away from the telephone.

Q. That is why you took several trips up there and attended to that water racket yourself. What was the flume-tender doing [552] that morning?

A. Well, we will probably have the flume-tender on and you can ask him. He was busy with his work, attending to his business.

Q. Isn't it his particular business to attend to this gate?

A. It is under ordinary circumstances, but this was an extraordinary circumstance.

Q. After you went up there the second time,—

(Testimony of John Richards.)

after you had set the gate 6 or 7 inches, what was the extraordinary circumstance that took you up there the second trip?

A. I went up there to see that the gate was in the same position I had put it in the morning.

Q. You expected to find it that way, didn't you?

A. Yes, I expected to find it that way.

Q. You had no reason to think anybody had changed it?

A. There was a possibility that the ditchman might come along and lower that gate, as I had not notified him that I had raised it.

Q. You wanted to get as much water as you could?

A. I wanted to get enough water to enable us to shut down the salt-water pump.

Q. And the gateman, or the ditch-tender knew that as well as you did?

A. No, he didn't that morning.

Q. Don't you ordinarily want to get as much water through that flume as you are able to use?

A. We had not been getting plenty of water through that flume—that was in the winter-time, and the ditchman does not take it upon himself to let in 6 or 7 inches of water without being told to do so.

Q. That is why you went up there the second time?

A. I told you I went up to see if the gate was in the same position I had put it in.

Q. Did you have any reason to believe that the

(Testimony of John Richards.)

gate would not be in the same position? [553]

A. I told you before the ditchman might come along there and see that the gate was raised and put it down because he didn't know that it was going to be raised. It happened that morning that I didn't see him there or I would have told him that I was going to raise the gate.

Q. There was nothing at the mill tank to show that there was anything wrong with the water?

A. There was an overflow at the mill tank when I left there.

Q. The red light had not jumped up?

A. No.

Q. The green one was on?

A. The green one was on.

Q. When you came down intending to go to town you met Mr. Higgins? A. Yes.

Q. And he told you that the penstock was overflowing? A. No, sir.

Q. What did he say?

A. He said there was water coming out of the screen.

Q. He said what?

A. Said there was water coming out of the screen.

Q. He couldn't see the screen, could he?

A. He knew where the water was coming from.

Q. Don't let us quibble about the proposition—it was coming out of the penstock, wasn't it?

A. It was coming out of the screen which is in the penstock building, over the penstock.

(Testimony of John Richards.)

Q. It was coming out of the penstock, then?

A. No, it wasn't coming out of the penstock.

Q. Out of the penstock building?

A. It was coming out of the penstock building—the building that is over the penstock; coming through the screen that is in the building over the penstock.

Q. There are two buildings, then, the one that the penstock is in, and the other one is on top of it?

A. One is,—well, it is apt to be called anything before [554] we get through here.

Q. Tell me what you have it marked on your map here—what does it say? That is what we are talking about, isn't it—that is where the water was coming out of, isn't it? A. That says penstock.

Q. It says penstock—all right. And then you went back to the office as fast as you could?

A. After meeting Higgins?

Q. Yes. A. Yes, sir.

Q. Sure—and you telephoned to Clauson in there?

A. Yes, I telephoned to Clauson.

Q. To immediately go up to this penstock?

A. Yes.

Q. What was the rush about if the water up there couldn't do any damage?

A. Why, I phoned to Mr. Clauson to go there—

Q. What did Clauson answer you?

A. Why, he said all right, that he would go right away. There was no question about it at all—he was directed to go, and Mr. Clauson went there.

(Testimony of John Richards.)

Q. All right—he was directed to go—you told him to go immediately?

A. I told him to go to the penstock and see what the conditions were.

Q. In your direct examination you used the word “immediately.”

A. I wouldn't be sure—I told him to go there right away, yes; I don't know whether I used the word immediately or right away—it would mean the same; but that was my inference, for him to proceed there as soon as possible.

Q. Now, then, by this time you had also given orders to shut the water off, hadn't you? A. Yes.

Q. Well, what was the hurry for you to get up there?

A. I wanted to see conditions there. [555]

Q. He is the mill foreman, isn't he?

A. He is the mill superintendent.

Q. He didn't say anything to you at that time about having noticed any disturbance in the water supply down at the mill, did he? A. No.

Q. He was running the mill the same as he had been doing before, wasn't he?

A. Yes, as far as I know—I couldn't say positively.

Q. So the penstock was flooding over and apparently the mill was also running at the same time?

A. I didn't say the penstock was flooding over.

Q. The spout was flooding over?

A. There was water coming through the screen.

Q. So on this occasion the water coming through

(Testimony of John Richards.)

this spout was not indicated anywhere at the mill tank?

A. Well, I didn't see the mill tank at that time.

Q. But as near as you know?

A. As near as I know.

Q. Well, now, Mr. Clauson had quite an important position down there, too, didn't he? A. Oh, yes.

Q. He had quite a number of men working under him? A. Yes.

Q. And everything was going pretty well down there in the works?

A. Oh, it was going all right as far as I know.

Q. And it took another important officer of the company to go up there and take a look at the screen—who else went with him?

A. I know that Mr. Nordling went with him—now, whether they went right together from that point, or whether they met at some particular point I couldn't say, but I know that the two men arrived there about the same time.

Q. What is his position?

A. He is an electrician.

Q. And you made a bee-line for the penstock, didn't you? [556]

A. I went to the penstock as soon as I could after telephoning.

Q. Why did you go up there?

A. Well, I went up there to investigate.

Q. The water couldn't overflow,—the penstock couldn't overflow?

A. I went up to investigate.

(Testimony of John Richards.)

Q. To investigate something that apparently couldn't happen,—water was coming out of that penstock, wasn't it?

A. Water didn't run out of the penstock.

Q. And you really found some of the leaves washed away when you came up there from the spout of the penstock, didn't you? A. Yes.

Q. And nothing else?

A. There were some pine needles, chips, brush—I wouldn't say leaves only.

Q. And the blueberry bushes were looking downhill?

A. What small brush was there were bending downhill.

Q. You didn't find any blueberries there, did you?

A. No.

Mr. RODEN.—That is all.

Redirect Examination.

(By Mr. HELLENTHAL.)

Q. At the time you telephoned Clauson, was the mill running? A. Yes.

Q. I mean were the motors running—was the power on? A. Oh, that I don't know.

Q. You had no knowledge of that at all?

A. No, I had no knowledge of that, no. I say I had no knowledge—yes, I had knowledge of that because I learned in going through the power plant that everything was dead.

Q. You had no other knowledge of what the conditions at the mill were? A. No.

(Testimony of John Richards.)

Q. You hadn't been up there?

A. No, I hadn't been up there.

Mr. HELLENTHAL.—That is all. [557]

Recross-examination.

(By Mr. RODEN.)

Q. You knew everything was dead when you went through the power plant?

A. I was informed that the power was all off.

Q. Mr. Hellenthal asked you the question if the mill was running and you said yes, didn't you?

A. When he asked me I was thinking of the—

Q. Just answer yes or no,—you said yes, didn't you? Did you say yes or no? I want you to answer the question whether you said the mill was running.

The COURT.—Of course the record shows what he said, and he could not change it one way or the other. You asked him what he said—it is for the jury to say what he said. He could not make it different by saying something else now, but if you want him to explain his two answers ask him to do it, but do not simply say, "You said so and so."

Q. All right. When Mr. Hellenthal asked you whether or not the mill was running you said yes, and then you looked at Vic Clauson and he shook his head, and then you said no, didn't you?

A. No, I didn't look at him.

Q. You didn't look at him when he shook his head? A. No, I didn't.

Mr. RODEN.—Well, I did. That is all.

(Testimony of John Richards.)

Redirect Examination.

(By Mr. HELLENTHAL.)

Q. Explain that to the jury.

A. I would like to have the questions and the answers read to me.

Q. I asked you this question, Mr. Richards,—I don't know whether you understood me or not,—I asked when you telephoned Clauson, was the mill running at that time?

A. Well, I telephoned Clauson twice that morning, Mr. Hellenthal, and when you spoke I was thinking of the first time I talked to him. If I said the mill was running, I had reference to [558] to the first time I talked to him. If I said the mill was running at the time I telephoned to Clauson after the slide occurred, I said it in a mistake.

Mr. HELLENTHAL.—That is all.

(Witness excused.) [559]

Testimony of George T. Jackson, for Defendant.

GEORGE T. JACKSON, called as a witness on behalf of the defendant, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. HELLENTHAL.)

Q. You may state your name.

A. George T. Jackson.

Q. Where do you live, Mr. Jackson?

A. Juneau.

Q. What is your profession?

(Testimony of George T. Jackson.)

A. Mining engineer.

Q. How long have you followed that profession?

A. Well, I have been engaged in mining since 1897.

Q. In what countries have you mined?

A. In New Zealand, Egypt and Alaska.

Q. You are at the present time general manager of the Alaska Gastineau Company's properties?

A. The manager, yes.

Q. And you have occupied that position for some years? A. Yes.

Q. Now, Mr. Jackson, do you remember the day of the slide which is now the subject of inquiry?

A. I do.

Q. January 2, 1920? A. Yes, sir.

Q. In the forenoon of that day where were you?

A. I was in my office in the Goldstein Building.

Q. Now, between the hours of 9 and 10 of that morning from your office in the Goldstein Building what, if anything, did you observe on the hillside in the way of flashes?

A. I observed quite a large flash somewhere in the vicinity between where the slide occurred and the Alaska Juneau mill, and I immediately called up our—

Q. Just a minute. That was at what time, Mr. Jackson? [560] A. About 9:30.

Q. Do you know where the wires of the Alaska Gastineau Company and those of the Alaska Juneau Company cross? A. Not positively I don't.

Q. But the flash occurred between the slide area

(Testimony of George T. Jackson.)

and the mill? A. Yes—somewhere in there, yes.

Q. What did you do?

A. I called up our chief electrician and he told me there had been a short circuit on the line.

Q. That was immediately after that flash?

A. Immediately after the flash.

Q. Now, Mr. Jackson, were you at the slide that day?

A. Yes; I visited the slide something over half an hour after it occurred.

Q. When you visited the slide what, if any, evidence did you see of bedrock water flowing out of the slide area?

A. There was quite a stream of water flowing from the bedrock.

Q. Can you indicate on the map there about the place where the stream was coming from from the bedrock?

A. I walked up as far as one of our towers here, and it was coming from this way.

Q. Where the word “slide” is?

A. Yes, somewhere in there. One of the towers was carried out, I think about here, and I walked out to that point.

Q. And the region where the word “slide” appears on that map, there was a stream of bedrock water flowing? A. Yes.

Q. Will you point out the vicinity of the hillside where you saw the flash?

A. The flash occurred somewhere along here, as

'(Testimony of George T. Jackson.)

near as I can tell. It was like a flash of lightning—I couldn't tell exactly.

Q. What volume of water was coming from the bedrock at the time you saw it? [561]

A. Well, I would judge there would be enough water for to fill a 12-inch box, about 3 inches deep.

Q. Quite a flow? A. Quite a flow, yes.

Q. Where would that bedrock water come from,—how did it get to bedrock—what course did the water take in getting to bedrock?

A. It must have been from the melting of the snow and the rain there, I would say, on the previous days.

Q. There had been a good deal of snow on the mountain-side? A. Very much, yes.

Q. And that had been melted?

A. Most of it had been melted, yes.

Q. What were the weather conditions as to whether it was warm or otherwise?

A. It was fairly warm the day of the slide—I should judge about 40.

Q. And the snow had been melting for several days—two or three days?

A. Yes, it had been running two or three days.

Q. Was there a big run off at that time?

A. Yes, there was quite a run off of water.

Q. Larger than ordinary?

A. Large for that time of the year.

Q. Now, Mr. Jackson, on that day did you know of any slide that happened on your property?

A. Well, we had a slide,—I wouldn't say it was

(Testimony of George T. Jackson.)

that particular day but within a day or two of that—that occurred in our Salmon Creek flume.

Q. At Salmon Creek? A. Yes.

Q. What caused the slide in your Salmon Creek flume?

A. The excessive rainfall caused the slide and the slide carried out the flume. [562]

Q. Where did it occur with reference to—was there any cut in the ground at the point where the slide occurred?

A. Yes; the flume had been cut into the bank—in our grade for the flume.

Q. That had taken away the support from the mass that slid? A. Yes.

Q. Or did that have anything to do with the slide occurring at that point?

A. Yes; it weakened the support, and with the excessive rains the hillside just slid down.

Q. The cut weakened the support and when the excessive rain made the mass wet and heavy it slid down? A. Slid down; yes.

Q. Mr. Jackson, what would be the effect of permitting running water to come out of a spout or flume in one place upon the hillside above the slide area, that hillside—the slope of Mount Roberts—you are familiar with that, aren't you?

A. Oh, yes.

Q. What effect would that have upon the slide mass lying upon the surface?

A. The water would cut a channel for itself sooner or later.

(Testimony of George T. Jackson.)

Q. Would it have the effect of soaking in and causing a slide, if it were left in one flow?

A. Not a volume of that kind, I don't think.

Q. If a cut were made in the bank say 8 or 10 feet deep, or something of that kind—some cut were made in the slide area itself—an excavation, for the purpose of putting up a building or some such purpose, what effect would that have upon the bank, provided, of course, there was no support put in—no bulkhead put in?

A. If a cut were made in the bank it would weaken the bank and sooner or later it would slide or slip off.

Q. You have had a good deal of experience with cuts in the mountain-sides [563] here, have you, Mr. Jackson, in connection with your operations? A. I have.

Q. What has been your observation in that regard?

A. If you put a cut in the side of the mountain, invariably it will slide sooner or later.

Mr. HELLENTHAL.—That is all.

Cross-examination.

(By Mr. RODEN.)

Q. That is, it will slide and fill in the cut?

A. It will slide in and fill the cut, or it will even cause a big slide.

Q. Slough in?

A. It will slough in and run up quite a distance.

Q. But the slide would generally start at the foot of the cut? A. Somewhere about there.

(Testimony of George T. Jackson.)

Q. It wouldn't start four or five feet back from there?

A. No; it would continue back quite a distance though.

Q. That is where the slide occurred on your flume out here? A. Yes; it started at the cut.

Q. Speaking of this bedrock water, that is what you call natural drainage, isn't it?

A. I don't know whether it was natural drainage—it was evidently due to the heavy rains on the previous days.

Q. Now, when water comes down a sidehill such as this sidehill is, Mr. Jackson, there are openings and interstices and crevices in there that the water goes down into, aren't there? A. Part of it does.

Q. And finally it has to appear on bedrock again?

A. Yes, it has to come to bedrock.

Q. Cannot go any further? A. No.

Q. And of course if that bedrock becomes exposed anywhere the [564] water will be seen?

A. Yes.

Mr. RODEN.—Sure. That is all.

Redirect Examination.

(By Mr. HELLENTHAL.)

Q. With the Court's permission I will ask this question—I forgot to ask it on direct examination. What effect would that bedrock flow have that you mentioned in causing a slide of the mass above?

A. With a very steep hillside like that mountain-side, the water would cause a slide, especially if there had been a cut.

(Testimony of George T. Jackson.)

Q. More especially if there had been a cut?

A. More especially if there had been a cut, yes.

Mr. HELLENTHAL.—That is all.

Recross-examination.

(By Mr. RODEN.)

Q. And if the cut were about 400 feet distant from where the slide occurred you would ascribe the bedrock water as the cause of the slide, would you?

A. I would have to know where the slide did occur.

Q. Suppose that the ground broke 400 feet above this cut?

A. I haven't heard the evidence, and I do not know whether—

Q. No, I suppose not, Mr. Jackson. This is practically a hypothetical question. Suppose a break would occur 400 feet above the cut?

A. It couldn't—there would be no influence on the slide if it was 400 feet from the cut.

Q. Your steel towers—this steel tower that was in the slide area was one of your towers?

A. Yes.

Q. You know where the two lines cross—do you know how far the wires are apart there?

A. No, I don't know. [565]

Q. How are those steel towers anchored, Mr. Jackson?

A. Generally with a hole dug down to bedrock, and then there was a hole drilled in the bedrock and one point of the tower was driven into the hole

(Testimony of George T. Jackson.)

and built up from it. All of the four legs are put on bedrock.

Q. Are in concrete foundations?

A. Not if we have to go down more than 3 feet to bedrock, the holes were drilled down in the bedrock and the towers put in in that way.

Q. Do you know how this particular tower was constructed? A. No, I don't.

Mr. RODEN.—That is all.

Redirect Examination.

(By Mr. HELLENTHAL.)

Q. Speaking of where the slide occurred, I think you and Mr. Roden did not understand one another. Where the slide mass has a length such as indicated here of 300 to 500 feet from the cut up the hill, where the mass that slid is of that size—at what point do you understand, Mr. Jackson, that the slide occurred?

A. Well, judging from what I saw of it within about just half an hour afterwards I would say the slide started at the foot.

Q. You would say that the slide started at the foot? A. Yes, I would say so.

Q. And the whole mass of course would come down at the same time? A. Follow it down, yes.

Q. Follow it down at the same time?

A. That is the way it appeared to me.

Mr. HELLENTHAL.—That is all.

Recross-examination.

(By Mr. RODEN.)

Q. Was the water still running out of that

(Testimony of George T. Jackson.)

flume when you got there, Mr. Jackson?

A. I did not observe any water at all. [566]

Q. If there had been any kind of a stream coming down there at that time you would have seen it?

A. There was no water running on the top of the ground above the slide.

Mr. RODEN.—That is all.

(Witness excused.)

(Whereupon court adjourned until 10 o'clock A. M. Thursday.)

MORNING SESSION.

March 31, 1921, 10 A. M.

Testimony of George Oswell, for Defendant.

GEORGE OSWELL, called as a witness on behalf of the defendant, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. HELLENTHAL.)

Q. You may state your name.

A. George Oswell.

Q. Where do you live, Mr. Oswell?

A. Ebner Mine.

Q. What is your profession?

A. Mine superintendent.

Q. You are the superintendent for the United States Mining, Smelting and Refining Company?

A. Yes.

Q. Who are operating what is known as the Ebner property? A. Yes, sir.

(Testimony of George Oswell.)

Q. You have been engaged as such for a number of years, I believe? A. Yes, sir.

Q. Were you at your works on the 2d day of January, 1920? A. I was.

Q. What are the soil conditions on the mountain-side up there—you are acquainted with the soil conditions on the mountain-side [567] there in a general way? A. Yes, sir.

Q. And you are also familiar with the soil conditions on the slope of Mount Roberts?

A. I am, yes.

Q. How do the soil conditions compare in those two places—are they the same?

A. Very similar.

Q. On the 2d day of January, in the forenoon of that day, just prior to the slide that occurred here, what, if anything, in the way of a landslide did you have up there?

A. We had a landslide up back of the Ebner buildings.

Q. How large a slide was that Mr. Oswell?

A. Why, it was quite a large slide. It came down from just above the Perseverence road and covered the road to quite an extent—perhaps 75 or 100 feet long and 6 to 8 feet deep of muck and mud.

Q. Was that the width of the slide there?

A. Yes, sir.

Q. Was there any flume or anything of that kind above the place where this slide came from?

A. No flume within 500 or 600 feet of it.

Q. And there was no flume above it at all, was there? A. No flume above it.

(Testimony of George Oswell.)

Q. Now, last fall what, if anything, did you have in the way of a slide right immediately below the place where this one broke loose?

A. We had one there in December last year.

Q. That was a smaller slide? A. Yes, sir.

Q. And this slide came right from above where that slide had broken loose last year?

A. Yes, sir.

Q. It was in December, just preceding this other slide? [568]

A. Yes, in the December preceding the 2d of January of last year; and also one this last December in the same place.

Q. There were three slides in that same place?

A. Yes; that is laying on the road up there now.

Q. There was one in December, 1919?

A. Yes, sir.

Q. One on the 2d of January, 1920?

A. Yes, sir.

Q. And also one last year? A. Last December.

Q. In the same place. Now, Mr. Oswell, what would be the effect on the surface if a stream of water, say a sluice-head or more of water were turned loose on the mountain-side of Mount Roberts, turned loose in one stream, and permitted to flow down the mountain—would that stream be in one place?

A. It would depend on the condition of the ground, its slope—if it was reasonably flat it would spread.

Q. But if the slope was 30 degrees or more steep?

(Testimony of George Oswell.)

A. It would cut a channel.

Q. It would cut a channel and run down the hill?

A. Yes.

Q. If the ground were flat of course the conditions would be different? A. Yes.

Q. It might soak in? A. Yes.

Q. Mr. Oswell, you have observed landsliding—groundsliding? A. Yes, sir.

Q. Now, how does that slide—does it break loose all at once, or does it work slowly and progressively?

A. It cracks away—might take some time to come, but it generally gives some warning—you will see a crack in the earth.

Q. And it comes slowly at first?

A. Yes, sir. [569]

Q. And after it gains momentum it will come down faster? A. Yes, sir.

Mr. HELLENTHAL.—That is all.

Cross-examination.

(By Mr. RODEN.)

Q. That refers particularly to conditions where ground breaks in the mine, doesn't it,—where the roof breaks?

A. It will do it in the mine or even on the surface.

Q. What indications would it give on the surface?

A. You would see a crack,—a crack would be noticeable in the ground.

Q. Whereabouts would you see the crack with reference to where the slide commences?

A. You will see it around the upper edge of it.

Q. If there were a cut in the bank and the moun-

(Testimony of George Oswell.)

tain-side rose up from the cut, the break would occur most likely at the cut, wouldn't it?

A. Yes, most probably it would.

Q. Those slides you had up there, they came down the gully, didn't they?

A. No, right on the side of the hill.

Q. Didn't they come down the hog-back?

A. Yes, it is kind of a hog-back.

Q. You can still see that hog-back?

A. Yes, sir; it is there to be seen.

Q. It is on the Basin road? A. Yes, sir.

Q. Was there a cut in the mountain-side at the foot of this slide? A. No.

Mr. RODEN.—That is all. [570]

Redirect Examination.

(By Mr. HELLENTHAL.)

Q. Did you say the slide would commence at the cut? The crack wouldn't be at the cut?

A. No, it would be up above, where the ground was coming down.

Q. The cut would be at one end and the crack at the other? A. Yes.

Q. When you say there was no cut up there, one of these slides was right below the other, so one slide made a cut for the other?

A. Each and every time it goes further up the hill—goes further up each time.

Mr. HELLENTHAL.—That is all.

Q. (By Mr. RODEN.) Suppose this crack had been on the hillside and a volume of water flowed into that crack, would that in any way hasten

(Testimony of George Oswell.)

conditions in bringing about a slide?

A. Hasten it, no doubt.

Q. (By Mr. HELLENTHAL.) And a volume of water flowing from the bedrock would hasten it?

A. Yes; no doubt would hasten it.

Mr. HELLENTHAL.—That is all.

(Witness excused.)

Testimony of L. H. Metzgar, for Defendant.

L. H. METZGAR, called as a witness on behalf of the defendant, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. HELLENTHAL.)

Q. What is your name? A. L. H. Metzgar.

Q. What is your profession?

A. Mine superintendent.

Q. Where are you employed at present? [571]

A. Alaska-Treadwell.

Q. What position do you hold with the Alaska-Treadwell? A. Superintendent.

Q. How long have you held that position?

A. About three years.

Q. How long have you been following mining?

A. Twenty years.

Q. And previous to that time what did you do?

A. Farmed some and railroaded some.

Q. Mr. Metzgar, are you familiar with the penstock of the Alaska Juneau Company that was there at the time of the slide?

(Testimony of L. H. Metzgar.)

A. Not specifically, no.

Q. In a general way you know what the situation was there, don't you? A. Yes, I do.

Q. Where a penstock is situated—I am referring to this place as a penstock now because it has been so referred to in the trial, although technically speaking, from an engineer's point of view, you may object to that term,—it may not be a penstock, but for the purposes of the question I will refer to it as a penstock and you will know what I mean—where a penstock is used for the conveyance of water, and the flume emptying into it, is of less capacity than the surface pipe leading out of it, and the surface pipe is kept open, of course, is there any occasion for an overflow at that penstock?

A. No, there is not.

Q. No chance for it to overflow? A. No.

Q. The overflow would be about where?

A. The overflow would be taken care of automatically by the pipe leading from the penstock.

Q. There would be no occasion for an overflow under those conditions? A. No. [572]

Q. Now, you are familiar with trommel screens of this type? A. Yes, sir.

Q. Do you know how the flow of water is in Gold Creek? A. Not particularly.

Q. We will assume that the water of Gold Creek is clear nearly all the time, but it sometimes has some debris in it, such as moss, leaves, and things of that kind, during freshets, if a trommel screen of the type that has been received here in evidence were

(Testimony of L. H. Metzgar.)

installed at the penstock, to screen the water at the penstock, and the trommel screen is operated by an electric motor, would there be any occasion to expect that that thing would ever spill over?

A. No, there would not.

Q. The only way it could spill over would be by filling the meshes up with moss so that the moss would carry the water over?

A. That is the only way it could happen.

Q. And you would not expect that to happen?

A. No.

Q. Would you under those circumstances think there was any necessity to build any flume or any other discharge device to take care of this water that might come from it? A. No, I would not.

Q. You have never heard, Mr. Metzgar, of any such device being constructed, have you?

A. No, I have not.

Q. In all your mining experience? A. No.

Q. Now, Mr. Metzgar, what would be the effect of a stream of water running,—you are familiar with the slope of Mount Roberts? A. Yes.

Q. And with the angle of the slope, 30 degrees?

A. Yes. [573]

Q. And the character of the soil upon it?

A. Yes.

Q. What would be the effect if a stream of water, say one or two sluice-heads or even more, were liberated at the point where this penstock used to stand, about 400 feet above the level of the sea,—liberated in one stream, what effect would that have upon the hillside, if any?

(Testimony of L. H. Metzgar.)

A. Cut a channel or find a channel that was already cut.

Q. Find its way down hill?

A. Yes, find its way down hill.

Q. Would that water soak in?

A. Not very generally, no.

Q. It would flow down in a solid stream?

A. Yes.

Q. Have you observed the action of water under similar circumstances, on similar hillsides with these here? A. I have.

Q. You may tell the jury of a specific instance where you have observed it under similar conditions.

Q. There was an instance down at Sheep Creek where the water took the trail out. The pipe-line broke and the entire flow of the flume went out of the penstock and down the hillside and washed a large channel,—washed it to bedrock, until it found its way back into the creek again.

Q. How large a flume is that, Mr. Metzgar?

A. It is about 3 feet by 4 or 5—I won't be sure about the width.

Q. Do you know about its carrying capacity in cubic feet per second?

A. I cannot state that.

Q. Would it be more than 20 cubic feet per second, or wouldn't you be able to say?

A. No, I don't know offhand what its carrying capacity is.

Q. It is quite a large flume, isn't it? A. Yes.

Q. It is the flume that supplies the entire power plant at Sheep Creek? [574] A. Yes.

(Testimony of L. H. Metzgar.)

Q. Mr. Metzgar, have you had experience in irrigating soil with a view to getting water to soak into the ground? A. I have had some.

Q. How do you go about it when you want the water to soak into the ground?

A. Spread it over the ground so that it covers the entire surface of the ground.

Q. How do you arrange that?

A. On the mountains, in some places where the ground is pretty level, you level it off entirely and throw up ridges in blocks.

Q. That is what you call a check? A. A check.

Q. What do they consist of?

A. They are little dams to hold the water on the ground until it soaks in.

Q. They are little reservoirs? A. Yes.

Q. The ground is terraced, so to speak?

A. Yes.

Q. And the ridge is all around? A. Yes.

Q. How large are those checks?

A. Depends upon the different localities. If there is any slope they are practically pretty small, where the ground is upraised—where it slopes.

Q. The only way the water will soak in is to bring it to a standstill? A. Yes.

Q. If you have no such check and the water is turned loose in an alfalfa field what is the result?

A. Cuts a channel and the water runs through that channel.

Q. Does not soak into the ground? A. No.

Q. Can you irrigate a steep hillside like that at all? [575] A. No.

(Testimony of L. H. Metzgar.)

Q. Why couldn't you irrigate it?

A. The water would not stay there long enough to soak into the ground.

Q. Would a volume of water running down that hillside—a hillside of that character, no matter what the volume of water might be, large or small,—would that water have any tendency to cause a landslide? A. Not from saturation, no.

Mr. HELLENTHAL.—That is all.

Cross-examination.

(By Mr. RODEN.)

Q. If there were any cracks and the water was running over them it would go into the ground, wouldn't it?

A. It would go in an open crack, sure.

Q. How large did you say that flume was at Sheep Creek? A. 3 by 4.

Q. How large is the flume up on the sidehill?

A. I don't know that.

Q. It isn't nearly as big?

A. I think not from the evidence I have heard.

Q. You have never seen a penstock connected up with some arrangement to take care of any possible overflow, Mr. Metzgar, have you?

A. A penstock, yes, but not a diversion box like this was.

Q. You noticed they all called it a penstock—the engineers made the description strong enough on the map, didn't they—it says penstock, it doesn't say diversion box,—the engineers who made the map

(Testimony of Frank A. Metcalf.)

didn't know what they were talking about, did they?

A. Oh, I don't know about that.

Mr. RODEN.—That is all.

(Witness excused.) [576]

Testimony of Frank A. Metcalf, for Defendant.

FRANK A. METCALF, called as a witness on behalf of the defendant, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. HELLENTHAL.)

Q. State your name. A. Frank A. Metcalf.

Q. What is your profession?

A. Mining engineer.

Q. How long have you followed that profession, Mr. Metcalf? A. About 17 years.

Q. Are you familiar with the place that has been termed the Alaska Juneau penstock—where it was formerly situated? A. Yes, sir.

Q. Are you familiar with the slope of Mount Roberts? A. Yes, sir.

Q. Were you in Juneau at the time this landslide occurred on the 2d of January, 1920?

A. I was, yes.

Q. You had been here for some time prior to that? A. Yes, sir.

Q. What position, if any, did you hold with the City of Juneau at that time?

A. I was City Engineer.

Q. As such engineer did you have any occasion

(Testimony of Frank A. Metcalf.)

to go up there on that day? A. Yes, sir.

Q. At what time of the day was it?

A. As near as I can recollect, it was about 1 o'clock—in the neighborhood of that.

Q. About one o'clock in the afternoon following the slide? A. Yes, sir.

Q. That was the second of January, the day the slide occurred? [577] A. Yes.

Q. How did you go up there, Mr. Metcalf?

A. I went up the trail.

Q. That is the trail leading by the foundation of the administration building? A. Yes, sir.

Q. And where does that trail lead with reference to the point where the slide broke loose?

A. It leads right past the slide—right past the apex of the slide.

Q. Just above it? A. Just above it.

Q. And you followed that trail up to the penstock? A. Yes, sir.

Q. What condition did you find that trail in reference to wash and matters of that kind? I wish you would explain to the jury just how the trail was,—first, was there ice on the trail?

A. Yes, there was ice on the trail.

Q. On the bottom of the trail? A. Yes.

Q. Explain to the jury how that trail looked to you at the time you went up there.

A. It showed every evidence of water having run over the trail. The rocks were washed clean, and there was no dirt to speak of around the rocks on the trail; and where the water had short cir-

(Testimony of Frank A. Metcalf.)

cuted, you might say—that is, jumped across the trail, the grass was matted down, and sticks and leaves and things of that kind were lodged in the bushes.

Q. You could see that water had been running there?

A. Oh, yes, you could see that water had been running over there.

Q. Was there any appreciable cut or wash in the trail itself? A. No. [578]

Q. There was not? A. No.

Q. It was just simply a trail that was washed clean showing that water had washed over it?

A. That is all.

Q. At the point where the slide occurred, right above the place where the slide broke loose, did you see any evidence there where the water left the trail and spilled over there?

A. Yes, sir, you could see that the water had left the trail—there was a sharp bend in the trail and the water could not make the bend and it went over.

Q. At that point there was evidence, was there, of running water between the trail and the apex of the slide?

A. Yes; the grass was all matted down, smooth, flat.

Q. Was there any wash whatever there?

A. No.

Q. Any evidence of scour?

A. None whatever.

Q. After leaving the trail did you follow the course of the water clear up to the penstock?

(Testimony of Frank A. Metcalf.)

A. Yes.

Q. What evidence of running water did you find between the spout of the penstock and the point where the water had entered the trail?

A. The leaves and debris that had been spilled over from the trommel were washed around there, showing that the water had carried them with it as it went down the trail, was about all you could see.

Q. Was there any evidence of any cut or abrasion in the soil?

A. No, except in this pile—there was a pile of muck and leaves and sticks there that was washed down.

Q. I mean in the ground itself? A. No.

Q. There was no abrasion of the soil? [579]

A. None whatever.

Q. The soil was in its original condition?

A. Absolutely.

Q. The only evidence that water had washed over it was the fact that you could follow these leaves and stuff that had been taken by the trommel screen from the water, along down the course of the water? A. That is it.

Q. As you went up there that day, Mr. Metcalf, did you see any water coming from the Alaska Juneau flume at any point, walking along to the point where the snowsheds are—did you see any water at that point?

A. You mean coming from the flume?

Q. No, from the top of the flume?

A. There was quite a bit of surface water running down over the snowsheds, was all I saw.

(Testimony of Frank A. Metcalf.) *

Q. Ran down over the snowsheds and then hit the top of the flume? A. Yes, and flowed over.

Q. How large a flow was that?

A. It was a pretty good-sized flow—there was quite a lot of water that day.

Q. To a person coming up Front Street and looking up there, where would the water appear to be coming from?

Mr. RODEN.—If you know.

A. Where would the water be coming from?

Q. You know where the water was coming down, don't you? A. Yes.

Q. You know it was surface water coming over the snowsheds and running down below?

A. Yes.

Q. Where did it appear to be coming from, from below?

A. Anyone that didn't know, looking up there couldn't exactly tell—you could tell it was coming from the top—you could see a sheet of water from the street. [580]

Q. But they couldn't tell where it was coming from? A. No.

Q. It would be a sheet of water shooting out over the flume? A. Yes.

Q. And that was the condition when you went up there that afternoon? A. Yes.

Q. Now, Mr. Metcalf, if a quantity of water, one, two or more sluice-heads of water, or even a larger quantity, were liberated at the point where this penstock stood and were permitted to flow down

(Testimony of Frank A. Metcalf.)

the hill, what, if any, effect would it have upon the soil on its way down if it ran for any length of time?

A. If it ran for any length of time it would naturally cut a channel for itself—it would find the water level in the quickest way.

Q. Would it have any tendency to cause a slide of the material on the hillside?

A. No, it wouldn't—it wouldn't have time—it would be going too fast.

Q. Going so fast it wouldn't have time to soak in, and that would be true regardless of the quantity of water coming down—regardless of how large the volume might be? A. Yes.

Q. And the length of time it might run?

A. Yes, sir.

Q. The longer it might run the deeper the channel would be? A. Yes.

Mr. HELLENTHAL.—That is all.

Cross-examination.

(By Mr. RODEN.)

Q. And it wouldn't make any difference how long this water was running through there at all, it never would have time to soak through?

A. Oh, yes, it would cut out a bank and the bank would cave in eventually—in a thousand years or so. [581]

Q. I understand you to say, Mr. Metcalf, that you know how the water coming from the snowsheds would look to a man standing on Front Street—is that the way I understand you?

(Testimony of Frank A. Metcalf.)

A. I know how it would look to me.

Q. And that is all you do know, isn't it?

A. I don't know how it would look to anybody else, but I know the appearance it would have to me.

Q. If a man saw the water—suppose he were even mistaken and thought the water was coming out of the flume up there instead of over the snowsheds, could a man be mistaken also by mixing up the snowsheds with the penstock—could he also be mistaken and think that the water was coming out of the penstock when as a matter of fact it was coming from over here?

A. No, they couldn't be mistaken there.

Q. Is there a possible chance for this water from the snowsheds to get over here?

A. No possible chance.

Q. Where were you at the time of the slide, Mr. Metcalf? A. At the time of the slide?

Q. Yes.

A. I was at home at the time of the slide.

Q. Then I suppose you went down to the slide as quick as you could?

A. The Mayor called me up and asked me to go down.

Q. Did you go into the Goldstein store at all that morning? A. Not that morning, no.

Q. When did you go in there?

A. I was in there in the afternoon and evening.

Q. About what time in the afternoon?

A. I don't remember—it was late in the afternoon I know.

(Testimony of Frank A. Metcalf.)

Q. It was after one o'clock?

A. Oh, yes, it was after I come down off the hill.

Q. Was any water running through his store then? A. Quite a bit.

Q. Was that water coming from the snowsheds?
[582]

A. I couldn't tell where it was coming from.

Q. Was it coming from the snowsheds to the best of your opinion?

A. It was coming from the hillside behind.

Q. I am asking you if it was coming from the snowsheds?

A. I couldn't tell you if it was coming from the snowsheds.

Q. So you want to tell the jury now that you cannot tell whether this water that was running in the store down here was coming from here or from some other source?

A. No, I don't know where it was coming from.

Q. And you are a mining engineer, are you?

A. Yes.

Q. Here is a mountain-side and here is a hog-back coming down here, and it is impossible for that water to get over here, isn't it?

A. Yes, it is impossible for the water to get over there.

A. As a mining engineer you want to state to this Court and jury, do you, that you don't know whether that water was coming from the snowsheds or not,—that is your best professional opinion, is it?

A. I couldn't say it was coming from the snow-

(Testimony of Frank A. Metcalf.)

sheds. It was coming from the mountain-side—it was surface water that was coming down there.

Mr. RODEN.—That is all.

Redirect Examination.

(By Mr. HELLENTHAL.)

Q. Do you know which direction the spout points at the trommel screen?

A. It points pretty nearly west.

Q. Points up towards Mount Juneau?

A. Yes, sir.

Q. In looking at it from Front Street what view would you get of water spouting out of there, would you see the flat side of it or the edge of it?

A. You would see the edge of it. [583]

Q. How would it be with the water coming over the snowsheds—would you see the front side of that or the edge of that?

A. You could see the front side of that.

Q. You could tell the width of that? A. Yes.

Q. Could you see the width, or tell the width of a stream coming out of the spout? A. No.

Q. You couldn't tell the width of it? A. No.

Q. Is that the reason you give as to why a man couldn't be mistaken as to where the water was coming from?

A. Yes; because one was a sheet of water, and the other would be a spout of water.

Q. A spout of water running in the opposite direction? A. Yes.

Mr. HELLENTHAL.—That is all.

(Witness excused.)

Testimony of Raymond F. Grefe, for Defendant.

RAYMOND F. GREFE, called as a witness on behalf of the defendant, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. HELLENTHAL.)

Q. State your name. A. Raymond F. Grefe.

Q. Do you know where the Alaska Juneau penstock used to be situated? A. Yes, sir.

Q. Were you up there on the day of the slide?

A. I was up there in the afternoon, of the day of the slide, yes. [584]

Q. About what time?

A. I would say it was about 1:30, as near as I can remember it.

Q. How did you go up, Mr. Grefe?

A. I went up those steps along by the buildings that were left, and then went up by the trail.

Q. And followed the trail up the hill?

A. Followed the trail right up to the penstock.

Q. Did you observe the condition of the trail as you went up? A. Yes.

Q. Was there any ice on the bottom of it?

A. There were patches of ice.

Q. What, if any, evidence of wash was there in the trail?

A. The gravel and the small rocks were washed out fairly clean.

Q. Was the gravel in the bottom of the trail washed out any—scoured?

(Testimony of Raymond F. Grefe.)

A. Not a great deal—not any more than any other trails *with* on a hillside like that.

Q. Not to any perceptible degree? A. No.

Q. That is, you would not be able to see it by looking at it? A. No.

Q. At the point right above the apex of the slide, where the ground had broken loose, did you see where the water had broken out of the trail?

A. That and two or three other places the water had cut out through a line over the grass.

Q. What evidence was there right above there—

A. The grass was matted down the way it always is when water runs over it, and there were sticks and things caught in the brush.

Q. Had the ground been washed out any there—any cut there in the soil?

A. No, I didn't notice any cutting at all.

Q. Then you went up the trail to the penstock?
[585] A. Yes.

Q. When you got to the penstock did you observe conditions there around the penstock where the water had been running?

A. I noticed, as Mr. Metcalf did—we went around the bottom of the penstock, and there was the trash and debris that had been washed out of the bottom of the trommel and had run down over the hillside.

Q. And by following that trash down you could see where the water had run?

A. You could see where the water had run until it hit the trail.

Q. Was there any cut or scour in the trail itself

(Testimony of Raymond F. Grefe.)

as the result of running water?

A. I didn't see any.

Q. If there had been would you have seen it?

A. I think I would, yes.

Q. You were there looking around for that purpose, weren't you? A. Yes.

Q. The ground was in its natural condition except for the fact that the leaves and stuff had been scattered all over it?

A. The leaves had been washed down.

Mr. HELLENTHAL.—You may cross-examine.

Cross-examination.

(By Mr. RODEN.)

Q. Are you a mining engineer, too? A. No.

Q. You are a brother-in-law of Frank Metcalf's, aren't you? A. I am.

Mr. RODEN.—That is all.

Q. (By Mr. HELLENTHAL.) You were with Frank Metcalf on the occasion that he went up there?

A. I went up with Mr. Metcalf, Mr. Johnson, Mr. Warner, and Mr. Richards, I believe.

Mr. HELLENTHAL.—That is all.

(Witness excused.) [586]

**Testimony of P. R. Bradley, for Defendant
(Recalled).**

P. R. BRADLEY, recalled as a witness on behalf of the defendant, having been previously duly sworn, testified as follows:

(Testimony of P. R. Bradley.)

Direct Examination.

(By Mr. HELLENTHAL.)

Q. You have already been sworn, Mr. Bradley?

A. Yes, sir.

Q. Where a landslide occurs, does it occur suddenly or slowly?

A. All the ground I have ever seen slide, slides by slow progression. Large masses of ground that have been known to move are recognized by geologists and given the terms of creeps. A large area that is under motion is called a creep; and that is a good word because it expresses more or less the way in which ground moves. When it starts to work or get in motion it creeps along by a series of let-goes, you would say, until the final collapse, when it goes.

Q. And those let-goes produce a series of short jerks? A. Yes.

Q. I wish you would explain to the jury just how that ground works and how it moves.

A. If a piece of ground is going to move at all it is because the resistance of that ground, the force to keep it from moving, is not as great as the forces that are at work to make it move, and the forces that are at work are constantly—they are always pulling—that is to say, gravity; and gravity will put a steady pull on a piece of ground, and that pull will be so strong that a weak point will yield, and after that weak point yields there will be a period of rest until the constant steady pull overcomes the next weak point, and so on,

(Testimony of P. R. Bradley.)

progressively, until so many weak points have been overcome that the whole mass collapses and falls down.

Q. And in cases where the ground slides on slopes like this here, where the ground slid behind the Koski house, would the action be sudden or progressive, as you have indicated? [587]

A. It would be progressive up to the point of collapse, and that, of course, would be sudden.

Q. And how long, in your opinion, would it require that kind of a mass to gain momentum—that is, how long would it require a mass to get to that point before it would collapse?

A. That is a very difficult thing to say. A mass may work for a very considerable length of time, but from the time that the movement is perceptible until the final collapse might be a matter of hours, might be a matter of days, might be a matter of months.

Q. When the mass comes down the way the evidence in this case indicates, extending from the toe of the Koski cut up the hillside,—how long was this chunk that broke down, Mr. Bradley,—can you tell from the map how long it was?

A. That looks to me as if it would scale about 150 feet.

Q. When a chunk of that kind slides is there any particular place along that whole 150 feet where it commences?

A. No, no, I think not. The first yielding of course is at the weakest point—nobody knows where that is.

(Testimony of P. R. Bradley.)

Q. The whole mass moves at one sitting?

A. Yes; the force of gravity is working throughout the entire mass, and the minute gravity takes possession of the mass—that is to say, gets in motion at all, it is moving the whole mass.

Q. Now, would the movement that you have spoken of as occurring some time prior to the final collapse be evident to persons looking at the face of the cut—would it be perceptible then?

A. Oh, yes; the first perceptible thing would be a crack forming around the upper limit of the ground that is in motion.

Q. The first perceptible thing would be the crack that would form at the upper end?

A. Yes; a man who was taking a bird's-eye view of the whole thing, that is what he would see.

Q. But a man standing at the cut—at the excavation behind the [588] Koski house, would it be a perceptible motion of the mass looking into the face of the cut?

A. The first thing he would see would be some strains in the bank—that would be by pieces sloughing off—it would be under compression and naturally pieces would begin to fall away.

Q. But there might be a crack above before there would be any evidence below?

A. Yes, that would be quite possible.

Q. Is there any evidence at the present time on the hillside of any slide? A. There?

Q. Where?

A. At the point on the hillside immediately across

(Testimony of P. R. Bradley.)

Lower Franklin Street from the house called Robert's row.

Q. How far up the hill does that extend?

A. Well, 150 or 200 feet.

Q. I wish you would explain to the jury just what there is at this particular point at the present time to illustrate what you have said.

A. At this particular time there is a very large mass of ground that is in motion and which has become evident in the last few days; and the upper side of the ground that is in motion is somewhat the same shape—the same outline, as the slide area marked on the map with the exception that the curve is a little broader—the sides are not so parallel; but the crack is decidedly pronounced until it disappears on the lower side and cannot be seen; but at the back end the crack is about a foot wide, and if my two hands represent the slope of the hill, or are parallel with the hill, where the crack has appeared, the ground in front has dropped 4 feet. The drop has not been so great around the entire perimeter of the crack, but right in the middle of the back the drop is about 4 feet and the forward movement is about a foot. [589]

Q. The crack there is practically 4 feet wide?

A. No; the drop is 4 feet, so if a man stands in front of it the first thing he sees is a fresh bank.

Q. Standing looking at it from the front it would appear like a crack 4 feet wide, when as a matter of fact it is only a foot wide—is that the idea?

A. No, he would see where the ground had

(Testimony of P. R. Bradley.)

dropped down and he would see a fresh bank 4 feet high, but he would not see the width of the crack at all because the ground is so flat. If the ground were steeper he would be able to see the width of the crack, but at this particular place the ground is so flat the width of the crack is not perceptible until you are over it.

Q. What is the size of the mass that is moving there at the present time?

A. It is a very large body of earth—I would say it is 150 to 250 feet down to the street and perhaps 250 feet along the street.

Q. The entire mass is at the present time in motion?

A. The entire mass is at this time in motion.

Q. What is the cause of that mass letting go?

A. It is the force of gravity working along the elastic curve.

Q. Where does the elastic curve start from that?

Mr. RODEN.—I don't care to object, your Honor, but it seems to me we are wasting a good deal of time by going all over the elastic curve again, etc. Counsel said he wanted to ask the witness a question of two.

The COURT.—What are you talking about now, Mr. Hellenthal? Do I understand that the testimony is directed to some slide—

Mr. HELLENTHAL.—No, it isn't this slide—it is a new slide that started yesterday.

The COURT.—That is what I mean. It isn't the slide in question?

(Testimony of P. R. Bradley.)

Mr. HELLENTHAL.—No, it isn't the slide that happened that day. It is merely illustrative of Mr. Bradley's statement of how [590] the ground starts, and we will follow this up with evidence that there was an excavation the entire width of it, and show how the ground works along the line of the elastic curve—just as the other witnesses have testified—so that the jury, if they wish, can go up and see it.

The COURT.—All right, but be brief about it.

Q. What is there in the way of an excavation in front of this mass?

A. The most of those buildings along the upper side of the street are set in a small excavation.

Q. And there is an excavation extending practically along the entire width of the mass that is moving? A. Practically, yes.

Q. Have you examined this entire mass to determine whether the entire mass is moving or not?

A. I have been over most of it. I have been over enough of it to tell me that the whole mass is in motion—that is my judgment from what I have seen.

Q. And in front where the buildings stand, has the ground shifted in there any?

A. No, it has not.

Q. That is, not perceptible? A. No.

Q. Not visible yet?

A. No. Immediately behind the buildings there are bulkheads, and it appears to me that those bulkheads have been inclined a very little forward.

Q. They ultimately will have to go?

(Testimony of P. R. Bradley.)

A. If the bulkheads are strong enough to withstand that weight they can hold it, but if they are not they will go. I don't know what is going to happen there.

Q. Now, Mr. Bradley, that mass has been moving for several days, I believe you said?

A. I understand so; yes.

Q. Now, when a slide happens, as you have indicated behind the [591] Koski house, and the ground is soaked with water from rain and melting snow so that it is well saturated, what evidences occur when the ground begins to move?

A. Well, the first movement of the ground naturally is the compression.

Q. Explain that term to the jury, just what you mean.

A. Well, if you have a mass of ground that is in motion from the upper side to the lower side yet the most of the motion is on top and there is no motion at the bottom, it simply means that a certain mass of ground is beginning to occupy less space—it is crowding itself together, and naturally in that case if the ground were saturated with water before this compression began some water would have to be pressed out,—it would be just like squeezing a sponge.

Q. It has a squeezing effect?

A. It has a squeezing effect; yes.

Q. And any mass in motion would have more or less of that depending upon the—

A. Depending upon the velocity. Of course after

(Testimony of P. R. Bradley.)

it once broke loose in final collapse everything would be free.

Q. Where would that water become evident?

A. It would become evident wherever the squeezing would be greatest, and in my opinion it would be down near the foot.

Q. In this particular case, speaking of the Koski slide, where would the water be visible?

A. Wherever the water was squeezed out of it, and that would be near the bottom; but wherever the water came from, it would run over the front of the slide area.

Q. It would squeeze out of the lower part of the ground across the entire width of it?

A. Naturally, yes.

Mr. HELLENTHAL.—That is all. [592]

Cross-examination.

(By Mr. RODEN.)

Q. Then you want to tell us, Mr. Bradley, that there must have been a terrible squeezing to get a couple of sluice-heads of water out of this mass; is that the idea?

A. I don't know how much water came out.

Q. You don't know very much more about that proposition than any other roughneck, do you?

A. That is a matter that anybody ought to know about.

Q. Anybody who has any ideas at all knows that a little water is coming down that sidehill?

A. Oh, yes, they ought to know it.

Q. And after a stream of water has been over

(Deposition of P. R. Bradley.)

it we all know there is probably a little more water in there? A. Oh, yes, there would be more.

Q. You don't pose here as an expert on slides, Mr. Bradley, do you?

A. Only to the extent that I have some knowledge of the mechanics of those things.

Q. You have thought a little about these things, haven't you? A. Yes.

Q. If the ground breaks on top and begins to move, it doesn't matter—that dirt has got to go somewhere, hasn't it?

A. Oh, my opinion about that is that the first result is a compression, and then the ground occupies less space.

Q. Certainly it does; sure. You couldn't compress, under the circumstances as they existed here—there couldn't have been such a terrible compression; in other words, that the ground could get so worked together that it occupied very much less room than it did a moment before this compression took place?

A. I would say, yes; because in this slide I have just spoken of, there has been quite a considerable opening on the upper side, and the ground below occupies a space less than it did before.

Q. Then it simply compressed itself, but you said there was a bulkhead to hold it, but on the Koski lot there was nothing [593] to hold it back, and the compression that started up on the hill—you don't want to tell this jury that the cut was there and it began to press up this way, and pressed it

(Deposition of P. R. Bradley.)

so as to get out all that water that you talked about, and that it spouted directly at this cut—is that what you want to say?

A. That would be my judgment—that is the way it would act, yes, up to a certain point.

Q. A man down here couldn't see anything at all—it would stand perfectly still, but up here it would all be breaking away, and not moving anywhere but simply compressing itself; is that the idea?

A. The man down below might not see any forward movement.

Q. What was that pressing against—what held it at that cut—what held it from going over the cut there?

A. Naturally the thing that held it was the friction on the bedrock.

Q. Wouldn't the friction on the bedrock be over the whole of it—this compression?

A. Ultimately; yes.

Q. The friction was overcome on the bedrock up there on top where the break has occurred, wasn't it? A. Oh, yes, sure.

Q. But down here where poor Koski's place was, the bedrock would act differently?

A. No; that is the way those things come—progressively.

Mr. RODEN.—That is all.

(Witness excused.) [594]

Testimony of John Bendel, for Defendant.

JOHN BENDEL, called as a witness on behalf of the defendant, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. HELLENTHAL.)

Q. You may state your name.

A. John Bendel.

Q. What is your profession?

A. Mechanical engineer.

Q. As such mechanical engineer do you occupy any position with the Alaska Juneau Company?

A. I do.

Q. What is your position there?

A. Designing new work, and attending to construction.

Q. Engineer of construction? A. Yes, sir.

Q. Do you remember the time when the trommel screen was installed in the penstock that has been referred to in this case? A. Yes.

Q. Under whose supervision was that installed?

A. Well, it was installed under Mr. Bradley's supervision, of course, after he approved the plans, naturally.

Q. You prepared the plans? A. Yes.

Q. You were the engineer of construction that had charge of that work? A. Yes.

Q. This model offered in evidence here, that is a model of the screen, isn't it? A. It is.

(Testimony of John Bendel.)

Q. The screen as it originally was?

A. Yes, just the size.

Q. Now, as part of your profession, Mr. Bendel, have you installed [595] screens of that type?

A. Yes.

Q. And have done so for many years, I believe?

A. Oh, yes; in all metallurgical plants screens are used to a very large extent.

Q. You have installed how many of those screens, would you think?

A. I couldn't exactly remember—about a dozen—we use them around milling plants.

Q. A good many, anyway? A. Oh, yes.

Q. And have had experience in the construction of penstocks and matters of that kind?

A. Oh, yes, yes.

Q. Now, Mr. Bendel, this screen was driven how?

A. Driven by an electric motor.

Q. How much power did it require to drive that screen? I mean how much was absolutely necessary to drive it?

A. Well, to make a rough guess at it, it shouldn't require actually more than about a horse-power.

Q. How much did you indicate for the screen at the time the screen was put in?

A. Well, at that time I consulted with the electrical department and they told me the only thing they had available at that time was a 3 horse-power motor, and I said, "Well, put it in, then."

Q. That size motor was not necessary?

A. No, that size was not necessary.

(Testimony of John Bendel.)

Q. A one horse-power motor would have been large enough? A. Yes.

Q. At the time of the installation I believe you said they had a 3 horse-power motor on hand and that was installed temporarily? A. Yes, sir.

Q. And then afterwards was another motor installed? [596]

A. No, a 3 horse-power motor was used there right along, I understand. Formerly the motor was a 3 horse-power, but it was on a different circuit.

Q. After the construction work was completed the matter was turned over to the electrical department? A. Yes.

Q. And then you had nothing further to do with it? A. No.

Q. And your recollection of what happened after that is not clear—that is not within your department? A. No, I would not care to tell about it.

Q. How was that screen set in motion by the motor?

A. That screen was driven by an electric motor, and a belt run over a pulley, and this pulley in turn drove through two pairs of gears, and the last gear was attached to the screen shaft proper.

Q. As long as this screen was in motion was there any chance for any water to run over it and out of the discharge spout?

A. No, it wasn't possible at all, because the screen is of such large proportions that it was absolutely impossible for any water to get over as long as the screen was in motion.

(Testimony of John Bendel.)

Q. And if it was in motion and if the water was clear, would there be any chance of water running over it?

A. If the water was clear there was none, no.

Q. And the chances of running over would depend upon the amount of debris and the volume of the water? A. Exactly, yes.

Q. You don't know anything about the electrical department, I suppose, Mr. Bendel?

A. No; you would get better information from the electrical department.

Q. This screen, Mr. Bendel, was that a safe and proper appliance for a case of that kind,—how does that compare with other devices? [597]

A. Well, it is a developed type, if you may say so. A stationary screen is a screen in its crudest form, and when it became necessary to have something more reliable the revolving screen was developed.

Q. It is an improved method of screening the water? A. Yes.

Q. And is the best method known for that sort of place? A. Yes.

Mr. HELLENTHAL.—You may cross-examine.

Cross-examination.

(By Mr. RODEN.)

Q. They have a flat screen at the present time, haven't they?

A. Yes, a stationary screen—yes.

Q. As I understand you, Mr. Bendel, there was

(Testimony of John Bendel.)

a belt from the motor? A. Yes.

Q. To a pulley? A. Yes.

Q. And the pulley is connected with two sets of gears? A. Yes.

Q. And the gears, are they fitted to the shaft of the screen?

A. Yes; that is, the fourth gear was attached to the screen shaft.

Q. And it was operated by a 3 horse-power motor? A. 3 horse-power motor.

Q. Suppose the screen became overloaded, what happened? A. Overloaded with what?

Q. Well, with debris?

A. I don't think it would make any appreciable difference at the speed the screen was running, because the screen was running so slow. The speed, that means the horse-power would increase only in proportion to the speed, and anything you could put in that thing wouldn't make any appreciable difference, I don't think. [598]

Q. Would it make it go any slower?

A. No, it couldn't slow up.

Q. Couldn't?

A. No, it couldn't, because the motor couldn't slow up—it is impossible, you know,—something else would have to happen.

Q. And that is the screen that is used in all mills?

A. Yes, it is used for all screening purposes—rock, sand, gravel—for instance, dressing water as we had it in the mill—for any purpose where screenings are required.

(Testimony of John Bendel.)

Q. If the motor stopped, or anything happened to the belt or to the gears—let me ask you this question first—if the motor stopped, how would it be started up again?

A. Well, by throwing the switch, of course.

Q. That is, somebody would have to walk over to the trommel house?

A. Yes, I suppose so—that means, provided the original switch was there, but I don't know what changes have been made, Mr. Roden, later on.

Q. The way you installed it, it provided for starting it at the penstock?

A. Well, I didn't make any provision, at all, Mr. Roden, because that is up to the electrical department pure and simple.

Mr. RODEN.—That is all.

(Witness excused.) [599]

Testimony of Victor C. Clauson, for Defendant.

VICTOR C. CLAUSON, called as a witness on behalf of the defendant, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. HELLENTHAL.)

Q. You may state your name.

A. Victor C. Clauson.

Q. What is your profession?

A. Metallurgist.

Q. What position do you occupy with the Alaska Juneau Company as a metallurgist?

(Testimony of Victor C. Clauson.)

A. Mill superintendent.

Q. How long have you occupied that position?

A. All the time, with the exception of one year when I was assistant, since the mill started.

Q. Are you familiar with the conditions about the Alaska Juneau mill as they were at the time of this slide? A. Yes.

Q. You were then mill superintendent?

A. I was.

Q. And had been for some time prior to that?

A. I had.

Q. And are you familiar in a general way with the diverting system by which the water is diverted and conveyed to the mill? A. I am.

Q. And had been familiar with that for some time prior to the slide? A. Yes.

Q. Mr. Clauson, what is the size of the mill tank indicated upon this map?

A. Twenty-five feet in diameter and 20 feet high.

Q. The elevation at the sides above the ground is 20 feet?

A. Yes, sir; there is approximately a foot and a half that is cut down of the height of the tank for an overflow. [600]

Q. The height of the tank at the overflow is 20 feet from the ground?

A. Why, the tank is 20 feet high, but practically a foot and a half is cut away for the overflow.

Q. What device have you for the overflow?

A. We have an overflow flume.

Q. Where does that water go?

(Testimony of Victor C. Clauson.)

A. To the tailings flume.

Q. How does the water get into this tank?

A. Though this system over from the tunnel—

Q. What devices have you to supply this tank with water?

A. From the channel and Gold Creek.

Q. You have two ways of getting water?

A. Yes, sir.

Q. Now, how do you get the water from the channel? A. Pump it.

Q. Salt-water pumps? A. Yes, sir.

Q. They were there at the time of the slide, and always have been? A. Yes, sir.

Q. What is the other source of supply you have?

A. From Gold Creek?

Q. That is— A. Fresh water.

Q. That is the system that has been referred to in this trial before? A. Yes, sir.

Q. That water coming from Gold Creek comes in how?

A. Through a flume and ditch, and then through a pipe-line.

Q. Has that pipe-line got any valve in it?

A. Yes, sir.

Q. Where is that valve situated?

A. In the mill.

Q. How is that valve operated?

A. By a wheel. [601]

Q. Can anybody go up there and operate that valve?

(Testimony of Victor C. Clauson.)

A. Indeed not, no, sir; it is chained with a Yale padlock on it.

Q. How long has that lock and chain been on there? A. Since it was installed.

Q. And there is a Yale padlock on it?

A. Yes, sir.

Q. So that it cannot be operated by anybody?

A. No, sir; not without breaking the valve, and then they cannot operate it.

Q. Who carries the key to that valve? A. I do.

Q. Can anybody get that key?

A. No, sir, except when I turned the key over to someone, and then I would have to go down with him and help him to close the valve.

Q. You never lose sight of that key?

A. No, sir.

Q. That valve is put in there for what purpose?

A. In case of an accident, or we want to cut off the water from the city fire protection system; or if anything should happen out in that system and we would still want to run the mill, or any emergency should arise outside, we can get the salt water, or we can divide the two.

Q. That can be done if it is absolutely necessary?

A. Yes.

Q. Did such an emergency arise within the last day or so? A. It did.

Q. When? A. Last night.

Q. What was the emergency?

Mr. RODEN.—We object to that—we don't care

(Testimony of Victor C. Clauson.)

what happened last night in the way of any pipeline.

The COURT.—Objection sustained.

Q. Anyhow, that is the purpose of the thing?
[602] A. I closed it last night, yes.

Q. It is ordinarily kept open so there is a hundred per cent run through the pipe?

A. Yes, sir; but we also must keep it locked when it is closed. When it is closed it is locked closed, and when it is open it is locked open.

Q. It is locked in any event?

A. In any position it is in it is locked.

Q. And it cannot be either closed or opened except by you? A. No, sir.

Q. When the water is running through the fresh water flume in what position do you keep it, opened or closed? A. Open.

Q. Open—always open, is that right?

A. Yes, sir, always.

Q. I wish you would explain to the jury the necessity, if any exists, for keeping the flow of the water at the mill tank steady and the pressure equal.

A. Well, on the ball mill floor, which is the floor we have the lowest pressure on—that is the floor which is on the level with the tank, the valves are set there at a certain point for feeding the mills for certain tonnages, and if the tank goes down the pressure immediately changes and changes the volume of the flow, and if the tank should go down almost empty we would have choke-ups on every

(Testimony of Victor C. Clauson.)

laundry there, and there would be spill-overs on the floor, and we would have what we call a mess.

Q. The tank could have quite a volume of water in it and still that condition could arise?

A. Certainly.

Q. Proceed.

A. The next condition is on our concentrating tables, where we have an even adjustment on our valves,—they are set to such a point where the dressing water will just wet the [603] linoleum—the dressing water is not for the purpose of washing in any way—it is just for the purpose, in our case, of keeping the linoleum wet and the lead sulphides wet so they don't dry and float off. A few feet of pressure in the tank—a difference in pressure, will cause a change in these valves, which are set to a very fine point.

Q. What results when that occurs?

A. Why, the man has to adjust the valves again—we have very long tables, so we couldn't have such a thing occur.

Q. What results with reference to a loss, if anything, in the mill if the pressure goes down—if any loss results?

A. Our sulphides, particularly our lead, which any of us know, will float if they get dry unless you keep them—the lead sulphide floats very easily—you can float them just by surface tension alone, and that is what carries our gold. All our gold is associated with our lead sulphides. If we are losing lead sulphides we are losing gold. That is

(Testimony of Victor C. Clauson.)

why it is absolutely essential that we keep our lead wet.

Q. A shut down in the water results in what?

A. First and primarily it results in a choke-up of the laundries all over the mill, and as that occurs, as the pressure goes down, it also results in a loss of values in our concentrating department.

Q. To what extent would you loss values?

A. Well, if it went dry our loss would be very great.

Q. Great and small doesn't tell us much, Mr. Clauson.

A. Proportionately great to what our values are. Our values can be spoken of as—

Q. As measured in dollars what kind of loss would it be?

A. Well, if the whole thing went—

Q. How is that?

A. I would rather express it in percentage of value.

Q. All right, express it that way.

A. Well, if we allow our tables to run dry I would say that [604] at least 25 per cent of our recoverable values are lost, in addition to our tailings, and that is progressive as it goes down from floor to floor.

Q. What do you mean by it being progressive as it goes down?

A. Well, the first table or first class of concentrators would lose one percentage, the next class, on the next floor would lose another percentage,

(Testimony of Victor C. Clauson.)

and the next table on the next floor would loss another percentage.

Q. And how large a total would be lost by the time you got through the entire works?

A. That would be hard to say—I would say at least 25 per cent of the value.

Q. At least 25 per cent? A. Yes.

Q. Now, in order to prevent that situation and keep the pressure steady what, if any, devices have you installed, and did you have installed on the 2d of January, 1920, at the mill tank?

A. We had—first, on the gage itself, or on the board on which the footage of the tank was painted, we had a green and a red light; when the tank was full the green light was on, when the tank went down 3 feet a red light would light, and also make a contact with a mercury trap and would ring a bell and also light a big cluster of red lights on the ball mill floor.

Q. And that red cluster is on the ball mill floor?

A. It is now.

Q. I am speaking of that time.

A. The first thing that would go on would be a red light—

Q. I say I am speaking of January, 1920?

A. So am I.

Q. What did you have then?

A. We had a red and green light at the gage in the mill.

Q. The gage was in the mill? [605]

A. Certainly.

(Testimony of Victor C. Clauson.)

Q. And the red and green light indicated the height of the water in the tank?

A. Only to the extent of this, if it is full and overflowing the green light is on; if it goes down 3 feet the red light came on, in addition to making an electrical contact with this other arrangement which was on the ball mill floor.

Q. What was on the ball mill floor?

A. That would ring a bell and also light a cluster of red lights.

Q. It would ring a bell and light a cluster of red lights which were on the ball mill floor? A. Yes.

Q. What kind of a bell was that,—how much noise did it make?

A. Could hear it almost all over the mill.

Q. So if the water in the tank fell 3 feet below the overflow point a red light would flash on at the gage in the mill, a cluster of red lights would flash on at the ball mill floor, and a bell would ring that you could hear all over the mill?

A. At the lower part of the mill where the water is used.

Q. So that you would be notified instantly?

A. Yes, sir.

Q. If the flume should break, or the water spill over at the trommel screen, or anything should happen—any accident happen on the flume line above, would those lights and that system of signalling indicate anything to you? A. Why, certainly.

Q. They would indicate that something had happened?

A. We would immediately know,—the overflow

(Testimony of Victor C. Clauson.)

would stop or diminish, and if it stopped we would immediately be notified by these contrivances which we had erected and installed there.

Q. If there was anything wrong you would be immediately notified by these contrivances that you have installed, and then [606] you would look for it?

A. Yes, or have somebody else look for it.

Q. Now, during the several days prior to the slide how did you get your water supply for the mill? A. From the channel.

Q. Got it from the channel? A. Yes.

Q. By means of your salt-water pumps?

A. Yes.

Q. Were you getting any fresh water on the 1st of January? A. No, sir.

Q. Were you getting any fresh water the day before that? A. No, sir.

Q. There was no fresh water in your flume at all during those two days?

A. I wouldn't say at all—

Q. I mean for the mill.

A. No, not for the mill.

Q. The mill was not getting any water?

A. No, sir.

Q. Now, on January 2d, the morning of January 2d, how were you getting your water supply?

A. From the channel.

Q. From the channel by the means of your salt-water pumps? A. Yes, sir.

Q. How long did that condition continue?

(Testimony of Victor C. Clauson.)

A. I shut down the salt-water pump at 9:45.

Q. At 9:45 why did you shut down the salt-water pump?

A. Well—do you wish me to state what happened prior to that time?

Q. All right, tell what happened prior to that.

A. Well, in the morning Mr. Richards inquired how much water I required to run the mill, and I told him I was running one pump, or 3000 gallons, and he said he was going to try [607] to turn in fresh water—

Mr. RODEN.—Never mind what he said.

Q. What did you do? You understand, Mr. Clauson, that conversations between you and Mr. Richards generally speaking are not competent evidence except where they are explanatory.

A. I can hardly make myself plain without saying—from deduction I can say what he did, is that proper?

Q. Yes, that is proper as far as you know.

A. Well, shortly after 8:30 he came through the mill and told me that he had turned in fresh water and for me to look out for it, the equivalent of one pump.

Q. What was the equivalent of one pump?

A. Three thousand gallons a minute.

Q. Do you know how much that required at the regulating gate? A. No, I do not.

Q. Do you know how much Mr. Richards turned in at that time? A. I know what he said.

Q. Have you any personal knowledge of it?

(Testimony of Victor C. Clauson.)

A. No, sir; that is outside of my jurisdiction.

Q. Anyhow the amount of water you required was 3000 gallons? A. Yes, sir.

Q. About that? A. Approximately.

Q. How long does it take the water to get down from the regulating gate?

A. I have known it to reach us in less than an hour and 15 minutes, and I have known it to take an hour and 45 minutes, depending on the volume which is turned in.

Q. You got a little water pretty soon?

A. Yes, but not the full volume.

Q. It takes probably an hour or an hour and a half to get the full volume? A. Yes, sir.

Q. That morning while you were waiting for the water to come [608] what, if anything, did you notice in the way of electrical flashes on the hill-side?

A. My office faces the channel, and at 9:25 the voltage went low and I also saw a slight flash outside of the window; at 9:35 there was an exceedingly bright flash, like a bolt of lightning, and I immediately started to investigate because two of our motors kicked out.

Q. Two of your motors kicked out as a result of the flash?

A. Yes, sir; and I started down towards the power plant,—that is where the flash—well, it was similar to a bolt of lightning, is what it was similar to, and the only place I could think of that would cause anything like that was the power plant, so I

(Testimony of Victor C. Clauson.)

started down for the power plant, and I met Mr. Richards in the shed coming up, and he saw the same flash in the shed, and he assured me that it came out of the west, that it wasn't in the power plant—that the flash came from the west, was what he figured.

Mr. RODEN.—Never mind what he figured. Tell us what happened, if anything—what you know. A. I know that.

Mr. RODEN.—You don't know what he figured.

Q. (Mr. HELLENTHAL.) Then where did you go, Mr. Clauson?

A. We examined the lines and there was nothing we could see wrong with the Gastineau lines, and I suggested that it might be on the direct current return; we stepped out on the east side then and examined that and there was nothing there, so we came back to my office.

Q. Did you see another flash after that?

A. Yes, sir; at 9:45 was another flash but not nearly so bright as the other one—the one at 9:35 was by far the most severe or intense.

Q. There was a small flash, then, and then a large flash, and then that was followed by a smaller one?

A. Yes, sir.

Q. That is the way it appeared to you? [609]

A. Yes, sir.

Q. When the second flash occurred two of your motors kicked out? A. Yes, sir.

Q. Did any of your motors kick out at the time the short flash occurred?

A. No; we lost another motor at 10:20 though.

(Testimony of Victor C. Clauson.)

Q. You didn't observe any flash, however, at 10:20? A. Except the voltage went down.

Q. I know the voltage went down but you didn't observe any flash on the outside? A. No, sir.

Q. When, if at all, did you shut off the salt-water pump?

A. Immediately upon coming into the office—while we had been out there looking over the D. C. return, I figured that there was enough overflow to shut down the salt-water pump—the overflow had increased considerably since I had looked at it the last time.

Q. There was enough overflow at that time to shut off the salt-water pump? A. Yes, sir.

Q. What did you do—did you shut it off?

A. I did.

Q. Did you have it on again that day?

A. No, sir.

Q. From that time on where did you get your water supply to run the mill?

A. From Gold Creek.

Q. How was the overflow at the time you shut the pump off?

A. We had a little more overflow than what the salt-water pump gave us—just a little.

Q. From then on during the forenoon what, if anything, did you have in the way of an overflow?

A. As soon as these two motors were kicked out I opened an equalizing valve,—we have three in the mill, and instead of [610] letting this overflow become too great and splash over the tailings flume, we open these equalizing valves and allow it to go

(Testimony of Victor C. Clauson.)

in back of the tailings flume—allow it to come in at the head of the tailings flume, so as not to create too much disturbance where the overflow comes in.

Q. The overflow gets too big?

A. Yes; whenever it gets too big we open these equalizing valves which allow it to go to the head of the flume.

Q. When the two motors kicked out the overflow got so big— A. Yes.

Q. That you equalized it with your equalizing valve? A. Yes.

Q. Did you still have an overflow? A. Yes.

Q. During the forenoon what, if anything, did you have in the way of an overflow?

A. At 10:20 I opened the release valve and I sat in the office from that time on until 11:15.

Q. What was the condition with reference to overflow during that period?

A. It remained constant, and our water consumption remained constant from 10:20.

Q. Your requirements at 10:20 were regulated by your release valve, and after that your flow was exactly the same until after 11 o'clock?

A. As was apparent to the eye, yes, sir.

Q. As near as you could see? A. Yes, sir.

Q. There was a constant overflow?

A. Yes, sir.

Q. No shortage of water? A. No, sir.

Q. All right. Now, what happened shortly after 11 o'clock, if anything? [611]

A. All of our motors kicked out.

Q. All of your motors kicked out?

(Testimony of Victor C. Clauson.)

A. All of them.

Q. Every one of them?

A. Every one of them.

Q. The entire mill shut down? A. Yes, sir.

Q. Did your lights go out at that time?

A. Our lights went very low, but came back and remained on for approximately between 5 and 10 minutes, and then they went out.

Q. Then what happened?

A. Then they went out.

Q. From then on everything was out?

A. Yes, sir.

Q. That was about what time in the forenoon?

A. My records show that the motors kicked out at 11:15 by my time.

Q. At 11:15? A. Yes, sir.

Q. And the lights went out 5 or 10 minutes later?

A. Yes, sir.

Q. That is by your time? A. Yes, sir.

Q. How did your time compare with the regular time?

A. It is pretty close. We regulate by our regulator, but we are usually 5 minutes ahead of Treadwell time.

Q. Now, Mr. Clauson, after the motors kicked out and the lights went off, what, if anything, did you get in the way of a telephone message?

A. Sometime later—15 or 20 minutes later, possibly—I received instructions from Mr. Richards to proceed to the trommel screen and see what was going on there.

Q. Did you do so? A. I did. [612]

(Testimony of Victor C. Clauson.)

Q. How did you go?

A. I went up through the mill and caught the motor—the motor was just pulling out.

Q. When you got to the trommel screen,—will you indicate on the map how you proceeded—your route?

A. Along the main tram from the mill.

Q. From the mill you went through the tippie?

A. Yes, sir.

Q. And reached the main tram? A. Yes, sir.

Q. Then you took the train there and ran down to where you got off the train at the new portal?

A. Yes, sir.

Q. And then you walked over, is that right?

A. Yes, sir.

Q. Now, upon reaching the trommel screen what did you find?

A. I found that water was running through,—it had stopped—the juice was off.

Q. In what direction was that water spouting?

A. This way, parallel to the tunnel.

Q. In the direction of Mount Juneau, or in the direction of Front Street?

A. Parallel with Mount Juneau.

Q. That is the way the spout is situated?

A. Yes, sir.

Q. What did you do?

A. I turned it over—gave it a half revolution and stopped the water immediately.

Q. You gave it half a revolution by hand?

A. Yes, sir.

(Testimony of Victor C. Clauson.)

Q. Did you find any sticks or anything holding it?

A. No, sir; the holes were choked with moss.

Q. The holes were choked with moss and you gave it a turn and the water went through it?

A. Exactly. [613]

Q. And you turned it by hand? A. Certainly.

Q. Did it turn hard or easy? A. Easily.

Q. There was nothing there to keep you from turning it easily? A. No, sir.

Q. Turned pretty nearly as easily as this thing turns in the socket where it stands now?

A. I think it turned easier because it had babbitted bearings and they were greased.

Q. It had babbitted bearings which were greased and it turned easier than this screen now turns if you handle it by hand—this screen that is in evidence?

A. I would say so.

Q. After you turned it what happened to the overflow from the spout?

A. It immediately stopped.

Q. The overflow from the spout immediately stopped and the water went through the screen?

A. Yes, sir.

Q. Then what did you do—where did you go?

A. I stepped back into the change room—I had given Nordling instructions—

Q. Who was with you at that time?

A. Mr. Nordling.

Q. Who is Mr. Nordling?

A. An electrician.

(Testimony of Victor C. Clauson.)

Q. Where did he join you?

A. He was on the train when I jumped on.

Q. He was already on the train when you got there? A. Yes, sir.

Q. And on his way to the trommel?

A. Yes, sir.

Q. You and he went down there together?

A. Yes, sir. [614]

Q. All right. What, if any, instructions did you give Mr. Nordling at that time?

A. I directed him to get juice on the line so that the trommel screen could be turned over and kept revolving.

Q. Then where did Mr. Nordling go?

A. He went to the tippie-house to the telephone.

Q. And he telephoned at the tippie-house,—by the way, when you and Nordling were there the power was off? A. Yes, sir.

Q. There was no power at the trommel?

A. No, sir.

Q. Then you went where?

A. I stepped back into the change room, just simply to look around and wait until he came back.

Q. While you were in the change room there whom, if anybody, did you meet?

A. Mr. Richards.

Q. Then where did you and Mr. Richards go, if anywhere? A. Went down the trail.

Q. Went to the trommel? A. Yes, sir.

Q. While you were at the trommel, Mr. Clauson, what, if any, examination did you make of the ground in the vicinity of the spout?

(Testimony of Victor C. Clauson.)

A. We gave what we thought was a thorough examination. We took our time about it, and it was our business to find out as much as possible about the character of that ground.

Q. What did you find in the way of evidences that water had been running there?

A. That the pine needles and leaves and small debris had been lodged in the grass and the grass was laying down—facing down hill.

Q. Now, you saw the water running yourself from the spout? A. I did. [615]

Q. You saw the point where the water hit the ground? A. I did.

Q. Now, was there any indentation or impression made on the surface of the ground at all where the water had run? A. There was not.

Q. Was there any abrasion or any cut whatsoever where the water had run down the hill from that point? A. There was not.

Q. Was there any cut of that neighborhood at all? A. There was not—not from water.

Q. Not from the water? A. No.

Q. I mean in that neighborhood of the spout where the water was running down hill?

A. No.

Q. Nothing but the gulches that were there?

A. That is all.

Q. Did you follow the trail down? A. We did.

Q. What was the condition of the trail?

A. It was pretty slippery—a lot of ice in it.

Q. A good deal of ice in it,—what evidence of

(Testimony of Victor C. Clauson.)

wash did you find in the trail?

A. At that one point it showed that water had jumped over the trail somewhere.

Q. I mean in the bottom of the trail,—how did the bottom of the trail look?

A. I wouldn't swear from looking at the trail that any more than the ordinary water had run through it unless I knew it. I couldn't tell from the evidences because small little pebbles were still laying in the trail where the ice had melted off, but a good part of the trail was still covered with ice.

Q. You knew of course that water had run down?
[616] A. Yes.

Q. And knowing what you did, there was evidence that water had run down there? A. Yes.

Q. But aside from that there was no appreciable evidence in the trail of running water?

A. There was not.

Q. Now, at the point where the water slopped over the trail at the apex of the slide, what evidence did you find there of running water?

A. The evidences which I was speaking about, that there were leaves and pine needles and small debris in the grass, and the grass was laying down.

Q. Was there any cut there? A. No, sir.

Q. None whatever? A. No, sir.

Q. Now, Mr. Clauson, where do you live in Juneau?

A. I live up on Harris Street—417 Harris.

Q. In going to and from your work you pass up

(Testimony of Victor C. Clauson.)

and down Gastineau Avenue?

A. I do nine times out of ten.

Q. You don't always take that route, but generally? A. Yes.

Q. And you have done that for how many years, approximately? A. At least five years.

Q. In passing back and forth there did you pass the slide area? A. I did.

Q. Did you pass there the day of the slide and days following? A. I did.

Q. What, if anything, did you notice in the slide area in the way of springs or bedrock flows of water? A. There has always been springs there.

Q. How soon after the slide did you notice those? [617]

A. Whatever time—I couldn't swear what time the slide occurred, but it was, I would say, less than an hour after the slide.

Q. At that time you noticed this bedrock flow of water? A. Yes, sir.

Q. How big a flow was that, Mr. Clauson?

A. I wouldn't say—I wasn't particular about estimating it.

Q. Just give the jury some idea,—I don't mean in inches,—was it a big or small flow?

A. Oh, there was,—it would be called a small creek when it came together.

Q. It formed a small creek when it came together? A. Yes.

Q. How many places were there where it came from the bedrock? A. A number of places.

(Testimony of Victor C. Clauson.)

Q. There were a number of places at that time?

A. Yes.

Q. Have you observed that flow since that time?

A. I have.

Q. How often? A. Many times.

Q. For how long a period?

A. Ever since that time I have been watching it.

Q. Has that water been running continuously from the time of the slide to the present time?

A. As far as I know—every time I have looked at it there has been water.

Q. And you have passed there daily?

A. Yes, sir.

Q. Every day? A. Yes, sir.

Q. During the time this other trial was on here did you have occasion to look at it? A. I did.

Q. Was there any water running then? [618]

A. Two streams then.

Q. Two streams running then. You know the point, Mr. Clauson, where the snowsheds picked up the surface water of Portal Gulch and carried it over the snowsheds and dropped it on to the flume and then on to the ground? A. I do.

Q. Have you observed water coming over there?

A. I have.

Q. Under what circumstances does the water flow over there—I mean in large volumes?

A. Well, after—anything that will produce running water, whether it is melting snow or rain, will cause a good volume of water to run over there,—melting snow or rain, either one of them.

(Testimony of Victor C. Clauson.)

Q. That reminds me—on this 2d day of January what was the condition on the hillside with reference to melting snow?

A. There was a good deal of it,—there was water running in all the gulches on the 2d of January.

Q. Was there snow up above the track level?

A. Certainly.

Q. What was that snow doing—was it melting or lying there? A. Melting.

Q. Melting and running at the same time?

A. Yes.

Q. What was the temperature?

A. It wasn't freezing.

Q. It wasn't freezing? A. No.

Q. On that day what was the volume of water running over that shed, large or small?

A. It was equivalent to a heavy rain—equivalent to what it is during heavy rains.

Q. A very heavy rain? A. Yes. [619]

Q. Now, had you seen that water run there on different occasions prior to that time?

A. Many times.

Q. Do you know how that water looks to one not familiar with the conditions up there? Answer the question yes or no—do you know how it looks?

A. I know how it looks to one person.

Q. To one person not familiar with the conditions up there? A. Yes, sir.

Q. How did it look to him?

A. He told me he thought our flume was broken a number of times. Every time that he saw me

(Testimony of Victor C. Clauson.)

after a heavy rain he would stop me and insist that the flume must be leaking. I asked to take him up and show him and convince him that it wasn't the flume, and he is convinced now that it wasn't the flume.

Q. He isn't convinced yet?

A. I think he is now.

Q. But anyway it took a long time to convince him? A. You bet it did.

Q. That flume is not there now? A. No.

Q. Not at that point—the sheds are still there, or don't you know about that?

A. No, I don't know about that.

Mr. HELLENTHAL.—You may cross-examine.

Cross-examination.

(By Mr. RODEN.)

Q. You don't know whether the shed is still there or not, Mr. Clauson?

A. Oh, indeed I do—I went through there this morning.

Q. That was Nels Sorby, was it?

A. Which one?

Q. The man who did the complaining? [620]

A. That is the fellow that complained to me.

Q. He thought your flume was leaking?

A. Yes, sir.

Q. And he mixed the flume up with the snow-sheds?

A. That is what he thought at that time, and had for a long time been thinking.

(Testimony of Victor C. Clauson.)

Q. That is, he thought that the water was coming out of the flume when as a matter of fact it was coming over the snowsheds? A. Yes, sir.

Q. And he thought he would give you warning?

A. Yes, sir.

Q. I understand you to say at 11:15 everything went out? A. Exactly.

Q. Everything was dead?

A. Except the lights.

Q. Except the lights, and they went out about 10 or 15 minutes later?

A. Five or ten minutes later.

Q. When you say everything was dead that means from one end of the mill to the other?

A. Every motor.

Q. Every motor from what?

A. From the course crushing, that is my first department—

Q. So the crushers were out, and down to the lowest—what is the last operation?

A. The retreatment floor.

Q. To the retreatment plant? A. Yes, sir.

Q. And then after the lights went out five or ten minutes later you got a message from Mr. Richards?

A. Oh, it was some time later than that.

Q. I thought you said about 15 minutes after that, or something like that? [621]

A. Fifteen or twenty minutes—the lights had come on again when Mr. Richards phoned me.

Q. The other power was still off?

(Testimony of Victor C. Clauson.)

A. Our motors were still off—we didn't get juice in the mill then for quite a little while after that.

Q. All right. He gave you directions to proceed to the penstock and examine what was wrong there? A. Exactly.

Q. And you got up there and found the motor stopped? A. Yes, sir.

Q. The motor was still warm, wasn't it?

A. I didn't feel it.

Q. And then you gave it a little flop and everything went?

A. I just turned the screen over—that is all I did.

Q. That half a revolution?

A. Just half over—half a revolution.

Q. Didn't need a 3 horse-power motor for you to turn that over? A. No, indeed not.

Q. And then everything went fine again?

A. That is the last I did to the screen.

Q. And then the water stopped running through the spout? A. Exactly.

Q. And followed its regular course?

A. Exactly.

Q. How long did you stay up there?

A. Well, I don't think I was up there longer than 10 minutes—I don't think I was there any longer than that.

Q. And after the expiration of those 10 minutes you went back to your station?

A. No, Mr. Richards and I went down this trail.

Q. Oh, you came down this way?

(Testimony of Victor C. Clauson.)

A. We came down this trail—this Koski trail.

Q. I mean you went down the Koski trail and then you went back to your station—to your business? [622]

A. Went down to the street, and then later I think I went back to the mill.

Q. And you only noticed one point up there where the water had jumped the trail?

A. That is all I noticed.

Mr. RODEN.—That is all.

(Witness excused.)

(Whereupon court adjourned until 2 o'clock P. M.)

AFTERNOON SESSION.

March 31, 1921, 2 P. M.

Testimony of W. G. Johnson, for Defendant.

W. G. JOHNSON, called as a witness on behalf of the defendant, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. HELLENTHAL.)

Q. State your name. A. W. G. Johnson.

Q. Where do you reside? A. 418 7th.

Q. I mean you live in Juneau? A. Yes, sir.

Q. Were you living here at the time of the slide, on January 2d, 1920? A. Yes, sir.

Q. You are engaged in the hardware business?

A. Yes, sir.

(Testimony of W. G. Johnson.)

Q. At that time what position did you occupy with the city? A. I was on the city council.

Q. In connection with that matter, as a city councilman, where, if anywhere, did you go with reference to this slide on the afternoon of the day on which the slide occurred? [623]

A. We went up to what they call the trommel screen.

Q. The city engineer went up with you?

A. Yes; there were three councilmen went up.

Q. Three councilmen and the city engineer?

A. Yes, sir.

Q. Which way did you go up, Mr. Johnson?

A. We took the steps going up alongside of the Dispatch building and hit the trail about half way up the hill.

Q. And then followed the trail up?

A. And then followed the trail up, yes.

Q. In going up that trail did you observe its condition as to whether it was icy or not?

A. There was ice in the trail, yes.

Q. Did you observe its condition with reference to its appearance as to whether it had been washed by water?

A. The trail is pretty much bedrock all the way up and it would be pretty hard to tell whether it had been washed by water or not. Some of the trail looked pretty clean, in some spots it wasn't.

Q. The trail was clean, that is about all you can say about it?

A. That is about all you can say.

(Testimony of W. G. Johnson.)

Q. After you got up to the penstock did you examine the ground to see whether there had been any cut or abrasion or any break in the soil by the action of the water?

A. My recollection is that there had been no break in the soil anywhere near the penstock.

Q. Nowhere around there at all? A. No.

Q. What evidences were there that water had been running there, if any?

A. Well, the natural evidence of seepage water going down the hill, was all.

Q. But there was no break whatever—no trench in the soil whatever? [624]

A. There was no trench dug around the penstock at all that I could see—that I saw at the time.

Mr. HELLENTHAL.—That is all.

Cross-examination.

(By Mr. RODEN.)

Q. Did you see a trench right above the slide area, Mr. Johnson?

A. I went up the trail, all the way up.

Q. Which trail did you take, the one leading alongside of the hill or straight up from the slide? Look at the map here—which trail did you take? See, here are two trails; one of them comes down behind the Moose Hall and the other one is here.

A. I think this is the one here.

Q. Did you see any cut in here?

A. No, I wasn't through there.

Q. I understand you to say that the trail was pretty much on bedrock?

(Testimony of W. G. Johnson.)

A. That is the way it appeared to me.

Q. And of course it couldn't cut into the bed-rock. Did you see a pile of rocks right under the mouth of the chute there, the spout, at the trommel screen?

A. I don't recall them at this time.

Q. Don't recall? A. No.

Mr. RODEN.—That is all.

Q. (By Mr. HELLENTHAL.) The bottom of the trail was rock, you mean?

A. Yes; boulders and rocks in it.

Mr. HELLENTHAL.—That is all.

(Witness excused.) [625]

Testimony of N. B. Cook, for Defendant.

N. B. COOK, called as a witness on behalf of the defendant, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. HELLENTHAL.)

Q. You may state your name. A. N. B. Cook.

Q. Where are you employed?

A. At the present time I am with the Juneau Ferry and Navigation Company.

Q. You are purser on the boat?

A. I am purser on the ferry boat, yes.

Q. Were you living here on the 2d day of January, 1920? A. I was, yes, sir.

Q. Where were you employed at that time?

A. Pacific Coast Coal Company.

(Testimony of N. B. Cook.)

Q. Do you remember when this slide occurred?

A. The morning of January 2d.

Q. Where were you at the time the slide happened? A. I was in the office of the company.

Q. Could you point out to the jury on this exhibit where your office was that you were in at that time—have you seen that map before, Mr. Cook? A. Since I came here.

Q. Look and see if you can find your office and point out to the jury where it was.

A. Right here, at the end of the bunkers.

Q. Where you are pointing? A. Yes, sir.

Q. At the place marked "office"?

A. Marked "office."

Q. At the point where it is marked "Pacific Coast coal bunkers"?

A. Yes, and the office is right at the corner.
[626]

Q. That little building at the corner?

A. Yes, sir.

Q. That office is not the same place now, is it?

A. Since that time it has been moved. There is about 40 feet added to the old bunkers and the office moved around.

Q. It doesn't occupy quite that position now. From that office did you have a clear view of the slide? A. Yes, sir, I did.

Q. Prior to the time the slide happened what, if anything, occurred to attract your attention toward the hillside?

A. A series of flashes. I was looking out of the

(Testimony of N. B. Cook.)

window or glass door there,—I happened to be looking out of the door—there is a glass in the door—and there was a series of flashes that first attracted my attention.

Q. How many flashes?

A. There were three distinct flashes.

Q. Did they come in rapid succession, or follow one another not so very rapidly?

A. They were not in rapid succession.

Q. Would you indicate with your hand about how rapidly they followed one another?

A. As I remember it about something like that.

Q. And those three flashes occurred about where, —where did they seem to you to occur on the hill-side?

A. A little to the right of those buildings up there, to the right of where the slide occurred.

Q. A little to the right of where the slide occurred?

A. Yes, sir, and up.

Q. From where you were standing?

A. Yes, sir.

Q. What did you do when you saw those flashes?

A. They naturally attracted my attention and I was watching then to see the cause.

Q. Where did you look for the cause of the flashes, Mr. Cook? [627]

A. At that time I thought possibly there was an ore train running along there, a trolley car.

Q. You afterwards learned that the ore train did not run at that point? A. Yes, sir.

(Testimony of N. B. Cook.)

Q. But at that time you thought it ran there?

A. I afterwards learned it was the flume,—I estimated at the time it was the track.

Q. You looked up there to see what there was up there that occasioned those flashes?

A. I thought there was a train running along and the trolley was off and probably hitting along the trolley wire.

Q. And you looked up in that direction to observe?

A. I did, yes, sir.

Q. How long, do you think, you looked up there before you changed your—

A. It must have been, I should judge, three or four minutes.

Q. Where did your eye glance down to—what point on the hillside?

A. When I was watching after these flashes and trying to find the cause of it, below and to the left I noticed a crack starting in the snow,—there was more or less snow on the ground at the time, and I noticed this crack.

Q. Where was that crack with reference to the place where the slide afterwards occurred?

A. It was right at the apex.

Q. Right at the top of it? A. Yes, sir.

Q. How wide did that crack look to you when you first noticed it, and how did it appear?

A. It was almost imperceptible at first—of course I watched it at the time and it gradually widened and of course my attention was glued to it.

Q. You may tell the jury just what you saw—how that crack acted as you looked at it. [628]

(Testimony of N. B. Cook.)

A. I first saw this little black mark, not knowing what it was, and it gradually widened and naturally my attention was glued to it, and it gradually widened until the earth began to move,—it widened very slowly at first, and then when the mass began to start it gained momentum.

Q. Then what did you see—what happened then?

A. The earth began to move, and then it started the buildings, and the buildings started down with the mass.

Q. The whole mass lying above between the buildings and the crack moved? A. Yes, sir.

Q. That is the way it looked from where you stood? A. Yes, sir.

Q. Then the buildings began to move?

A. They began to move, yes, sir.

Q. Then what happened?

A. They started to move and they hit at the bridge there, or street.

Q. Before that had there been any movement of the electric tower?

A. During the movement of the earth and these buildings there was another large flash.

Q. Did you observe what happened to the tower standing in the slide area or slide mass at that time?

A. No, I did not.

Q. You didn't observe that?

A. No, sir; I was watching the buildings.

Q. You saw the flash, however?

A. Yes, I saw the flash.

Q. But the buildings went before you saw the

(Testimony of N. B. Cook.)

flash? A. They had started, yes, sir.

Q. How did the buildings come down the hill?

A. As I say, they moved rather slowly—seemed to hesitate at this bridge or street, then there seemed to be a jump off, then they gained very rapidly in momentum. [629]

Q. At the street how long did the buildings hesitate?

A. Well, I hardly know—I don't know the length of time, only I thought they were going to stop there.

Q. You thought they were going to stop?

A. Yes, sir.

Q. But they finally started again and then crashed down the hill? A. Yes, sir.

Q. After the buildings got down the hill, Mr. Cook, and had settled, did you observe the apex or the point from which the slide started?

A. Yes, sir.

Q. At that time was there any water running over the apex of the slide?

A. There was not any water.

Q. How long after that was it before you saw water running over the apex of the slide?

A. Well, the various things that I did, I should judge at least 15 minutes.

Q. What did you do between the time that you saw the slide and the time that you saw the water coming over?

A. I watched these buildings until they all broke apart and the slide settled, then I ran around to the

(Testimony of N. B. Cook.)

bunkers—there were a number of teams there and I called the attention of the teamsters to the slide, and in the meantime some of them had seen it, so I came back to the office and called up Mrs. Cook,—I had difficulty in getting her—

Mr. RODEN.—We don't want anything about your calling Mrs. Cook.

Q. Just tell what you did.

A. I phoned—I had difficulty in getting central,—

Mr. RODEN.—I don't care what you told Mrs. Cook.

The WITNESS.—I am not telling what I told Mrs. Cook.

Q. Tell what you did that took time.

A. I phoned; then I went in and put on my overcoat and overshoes; in the meantime the phone rang again, and I answered it, and [630] fixed the fire—banked the fire, and when I came out started to run over there, and that is when I first saw the water coming over there.

Q. It may have started before that but that is the first time you saw it?

A. I don't think it started before that because I think I saw it just as it came over.

Q. You think you saw it just as it commenced to come? A. Yes, sir.

Q. That is after you had done these various things that you have testified to?

A. After I had done these things, yes, sir.

Q. Now, Mr. Cook, how large a volume of water was coming over there at that time?

(Testimony of N. B. Cook.)

A. At first there wasn't any water of any quantity, then it came with a gush.

Q. Came with a gush afterwards? A. Yes, sir.

Q. Then there was how much?

A. I don't know as to the quantity—there seemed to be considerable—it was kind of spread out.

Q. Did the water appear clear or otherwise?

A. Whitish.

Q. It was whitish from where you were?

A. Yes, sir.

Q. Was it clearly visible? A. Very much so.

Q. What was the width of the stream, Mr. Cook, that you saw coming over there?

A. It was rather hard to judge the width—it seemed to take in—well, it came directly over the apex, but I don't know how wide it was.

Q. Quite a wide stream?

A. Yes; 6 or 7 or 8 feet wide, something like that.
[631]

Q. Mr. Cook, I direct your attention to a picture, have you seen that picture before?

A. No, I haven't; no, sir.

Q. I wish you would look at it.

Mr. HELLENTHAL.—The small one has not been offered—have you any objection to having this one offered?

Mr. RODEN.—No.

Mr. HELLENTHAL.—I offer this in evidence.

Mr. RODEN.—All right—have it marked as plaintiff's exhibit.

(Whereupon said picture was received in evidence and marked Plaintiff's Exhibit "O.")

(Testimony of N. B. Cook.)

Q. I now hand you these two pictures, the enlargement is supposed to be the same thing as the small one,—you have never seen either one of those before? A. No, sir; I haven't.

Q. Those pictures were supposed to have been taken about ten minutes after the slide. I will ask you to look at them and state whether they fairly represent and illustrate just what you saw on the hillside? A. Yes, they do—just as I saw them.

Q. With reference to snow and everything else?

A. Yes, sir.

Q. Was that picture taken before or after the water came over that you saw,—does the water show that you saw? A. No, it does not.

Q. There isn't any water coming over the apex of the slide in the picture? A. No, sir.

Q. The water that you saw was a white stream—would it be clearly visible on that picture?

A. It surely would, yes, sir.

Mr. HELLENTHAL.—You may cross-examine.
[632]

Cross-examination.

(By Mr. RODEN.)

Q. Do you see any water on that picture at all, Mr. Cook?

A. On the slide,—not that I can discover.

Q. Take a look at it,—it is full of water. Of course this might be taken on a poor day and shows against a dark background.

A. I don't see any indication of a running stream there.

(Testimony of N. B. Cook.)

Q. What do you think this is, and this down here, isn't that water?

A. No, I don't think so; this might be here, but it doesn't look like it to me,—it may to you.

Q. Anyway the water that you saw is not on there? A. No.

Q. You didn't see any water until 15 minutes after the slide? A. No, sir, I didn't.

Q. You saw all those things that you spoke of from the Pacific Coast dock?

A. From the coal office.

Q. What is the distance from the place where you stood up to the penstock, about, in an air line?

A. About 600 or 700 feet, I should judge.

Q. Isn't it nearly 2000 feet?

Mr. HELLENTHAL. — Mr. Cook evidently doesn't understand your question. The question counsel asked was to the penstock.

The WITNESS.—Oh, the penstock—I thought you meant the slide.

Mr. RODEN.—It isn't very much farther over to the penstock than to the slide.

The WITNESS.—I don't know the distance.

Q. (By Mr. RODEN.) You saw a little crack opening up from the Pacific Coast dock?

A. Yes, sir.

Q. At first you couldn't see it at all? [633]

A. I presume you couldn't see it when it first started, but I certainly saw it.

Q. How long have you lived here, Mr. Cook?

A. In Juneau?

Q. Yes.

(Testimony of N. B. Cook.)

A. I have been here four or five years—that is, in and out of Juneau.

Q. You have seen that sidehill a good many times, haven't you? A. Certainly.

Q. Whereabouts was it with reference to the slide—the elevation of the sidehill—that you saw these first flashes you spoke about?

A. The other way, at the right, and seemed to be a little higher than—

Q. It was down the channel, then?

A. Yes, down the channel.

Q. And then you began to look for a trolley line?

A. Yes, sir.

Q. Thought maybe it might be ore cars running along there? A. Yes, sir.

Q. You have been in this town four or five years and don't know where the ore cars run along the sidehill, of the Alaska Juneau Company?

A. No, I didn't

Q. You are in the employ of the ferry company, are you not? A. Yes, sir.

Q. That is controlled by the Alaska Treadwell, isn't it? A. I don't know their business at all.

Mr. RODEN.—That is all.

Q. (By Mr. HELLENTHAL.) The Alaska Treadwell has no stock in the Alaska Ferry and Navigation Company, has it, and never had any, had it?

A. I don't know anything about it, gentlemen;

(Testimony of B. D. Stewart.)

all I do is to draw my pay—I am more interested in that than anything.

Mr. HELLENTHAL.—That is all.

(Witness excused.) [634]

Testimony of B. D. Stewart, for Defendant.

B. D. STEWART, called as a witness on behalf of the defendant, being first duly sworn to tell the truth, the whole truth and nothing but the truth, testified as follows:

Direct Examination.

(By Mr. HELLENTHAL.)

Q. State your name. A. B. D. Stewart.

Q. Where do you reside, Mr. Stewart?

A. In Juneau.

Q. What is your profession? A. Engineering.

Q. You have also studied geology, Mr. Stewart?

A. I have, yes.

Q. What school are you from?

A. University of Montana.

Q. How long have you followed your profession?

A. Twenty years.

Q. During that period you have had a varied experience? A. I have.

Q. You have been connected with the Government Geological Survey? A. Yes, sir.

Q. For some years? A. 7 or 8 years.

Q. And since then you have done all sorts of engineering work in Idaho, Montana and Alaska; isn't that true? A. That is true, yes.

Q. Now, Mr. Stewart, were you in Juneau on the

(Testimony of B. D. Stewart.)

day of the slide that is now the subject of inquiry, January 2, 1920? A. I was, yes.

Q. After the slide happened did you have occasion to go by the slide to the penstock of the Alaska Juneau Company?

A. I went up there in the afternoon of the day that the slide occurred. [635]

Q. Which way did you go, Mr. Stewart?

A. I went up a trail that leads from the vicinity of the Bergmann Hotel—I think they call it the Harris Street trail.

Q. Then you went up that way to the penstock?

A. Yes.

Q. After getting to the penstock did you make an examination of the conditions surrounding the penstock with reference to whether the ground showed any evidences of running water? A. I did, yes.

Q. What evidences did you find, Mr. Stewart?

A. I found evidences of a recent flow of water from the penstock.

Q. What evidences did you find Mr. Stewart?

A. Why, the principal evidences were in the grass and bushes, all bent over by a flow of water—apparently recent flow of water, and leaves, grass, etc., caught on the twigs.

Q. Did you find any evidence of abrasion or cut in the soil?

A. I didn't notice any, no.

Q. If there had been any such thing there you would have noticed it? A. I think so.

Q. You were there for that purpose—looking it over? A. Yes.

(Testimony of B. D. Stewart.)

Q. How far down the hill did you follow the course of the water as you could trace it by the leaves, sticks, moss and things of that kind and the bent over condition of the grass?

A. That afternoon I merely examined it right in the vicinity of the penstock. It was nearly dark when I got up there, and I came on down.

Q. Were you up there again, Mr. Stewart?

A. I went up again the next morning.

Q. Did you again look the ground over?

A. I did.

Q. Did you find any evidences of running water that you had not seen the day before, at the penstock? [636]

A. Not at the penstock.

Q. Where did you go from there at that time?

A. I followed down the course of the water as near as I could.

Q. What evidences of running water did you find as you went down the hill?

A. Similar to the ones that I have described.

Q. Was there any evidence of cut or abrasion or wear in the soil?

A. Not in the soil itself, no; it was merely in the vegetation—mostly on the surface.

Q. There was no evidence of any scouring of the soil? A. I did not observe any.

Q. Then did you follow the water down to where it got into the trail? A. I did.

Q. Did you follow the trail down? A. I did.

Q. What was the condition of the trail as to

(Testimony of B. D. Stewart.)

whether it was icy or otherwise?

A. It was icy in spots.

Q. It was icy in spots on the day after the slide?

A. Yes.

Q. What was its condition with reference to wash,—had it been cut down by the action of the water running through it, or what was its condition?

A. No, the action of the water in the trail was almost imperceptible to me. I followed it to the point where it went into the trail, then I followed the trail down, and there were no evidences of it having left the trail until it got just above the apex of the slide, then there were evidences of the water having left the trail.

Q. What evidences did you find there of water having left the trail?

A. The evidences there were similar to what they were up further on the hill. [637]

Q. What were those evidences?

A. The bending over of the vegetation on the surface.

Q. Was there any evidence of a cut there?

A. No.

Q. At that time the apex was to one side of the trail?

A. It was to one side of the trail, yes, several feet.

Q. How many feet?

A. I didn't make a particular note of it—it must have been 10 or 15 feet.

(Testimony of B. D. Stewart.)

Q. Some little distance? A. Yes.

Q. Did you follow the trail down to the administration building?

A. I followed down between the trail and the slide area.

Q. What evidences of wash were there in the trail farther down as compared to what you found above the slide area?

A. I didn't notice as to that.

Q. How is that?

A. I didn't make any observation as to that.

Q. Now, Mr. Stewart, you are familiar with the slope of Mount Roberts? A. I am.

Q. And with the character of the soil? A. Yes.

Q. And know how it has been formed and deposited? A. Yes.

Q. And know how those soil deposits are situated on the slope? A. Yes.

Q. Now, what would be the effect upon those soil deposits upon the hill, the deposits lying below, if a quantity of water, say 1, 2 or 3 or more sluice heads, were turned loose or liberated at the level of the flume, at the point where the penstock was formerly situated, and permitted to run down the hill,—what would that water do?

A. You mean under the conditions as they exist on the hillside? [638]

Q. Yes, sir.

A. Well, it would do just what this water did—flow over the surface.

Q. Flow over the surface, and if it ran long

(Testimony of B. D. Stewart.)

enough what would it do?

A. If it ran long enough to scour through the mass of roots and vegetation that covers the soil I think it would cut a trench down through the surface.

Q. A small quantity of water running for a short time might not cut a trench? A. That is true.

Q. But a considerable quantity of water would soon cut a trench, would it not, Mr. Stewart?

A. Probably would.

Q. That is, under the conditions that existed at that time?

A. Yes; if it flowed for some length of time. I think it would take some little time for it to do that because the soil is covered by a pretty heavy mass of leaves, roots, moss and small bushes.

Q. That protects it against the action of the water? A. Yes.

Q. On that hillside as you went down there, were there any cracks that the water could run into between the apex of the slide and the penstock?

A. I didn't see any.

Q. The ground was solid?

A. As far as I noticed.

Q. So that the water followed the trail and stuck to the trail? A. Up to the time it left it, yes.

Q. Up to the time it left it where the sharp bend occurred? A. Yes.

Q. Now, Mr. Stewart, what would be the effect if one were to make an excavation or a cut in the soil deposits on that hillside anywhere, say a hun-

(Testimony of B. D. Stewart.)

dred feet up from where that [639] Koski house used to stand—in that vicinity—what effect would that have upon the mass lying above it?

A. It would weaken the mass above it—disturb its repose.

Q. What would that ultimately result in?

A. Probably result in a rupture somewhere along the hillside in the soil—perhaps a slide eventually,—it would probably result in a slide.

Q. Now, Mr. Stewart, I call your attention to what purports to be a cross-section of this side area (Defendant's Exhibit No. 6)—I don't suppose you have seen this map before, have you, Mr. Stewart?

A. I think I have, yes.

Q. Then you are familiar with what it shows?

A. Yes.

Q. Assuming there was a cut in the ground at the place to which I am now pointing, right behind the building, which is a side view of what is supposed to be the Koski house, what does it indicate as to what was the cause of the slide on that occasion?

A. I think the making of a cut at that point would certainly weaken the mass above it and tend to cause it to slide, for the reason that loose soil of that sort, deposited on a hillside of that sort, will rest at a certain angle of repose—a certain angle from the horizontal, which it naturally assumes; and the whole mass under those conditions has no equilibrium or no balance, you might call it, and if a cut of that kind is made on a slope of that

(Testimony of B. D. Stewart.)

sort the balance or the equilibrium is disturbed, of the whole mass.

Q. Then what happens?

A. Strains set up within the mass itself and tend to cause it to slide.

Q. When a slide happens under those conditions what form does the slide mass take?

A. Well, that depends on the nature of the mass.
[640]

Q. Well, assuming the mass to be of a nature such as it is over here, with reference to the curved condition—directing your attention to this curved condition at the head of the slide—what does that indicate?

A. It tends to assume a definite curved form.

Q. It tends to assume that kind of a form?

A. Not only the curved form, but the curve itself is of a peculiar type.

Q. What is that type known as among geologists and mathematicians?

A. Known as the elastic curve.

Q. The principle of that curve, or the geometry of that curve has been known, I believe, Mr. Stewart, for a long time, in a general way?

A. The nature of the forces that would appear under those conditions has been known for a considerable length of time. The fact that a break would occur along a curve such as is known as the elastic curve is a matter of recent knowledge.

Q. When and by whom was that knowledge first brought out?

(Testimony of B. D. Stewart.)

A. It was brought out by Dr. Becker of the Geological Survey in connection with studies that he made at the Panama Canal.

Q. You know Dr. Becker, don't you?

A. I have met the doctor.

Q. He is connected with the Government Geological Survey? A. Yes.

Q. Now what, if anything, did Mr. Becker do in the way of presenting to the world a formula to determine the locus upon the ground of the elastic curve where a cut was made?

A. Well, the Doctor assumed a condition which really did not exist at the Canal, but it was so nearly like the conditions that existed that the principles involved were the same as those involved in the slides that were being studied. In other words, he assumed a mass that was perfectly homogenous, that is, that the particles that went to make it up were all of the same size and of the same character, and he assumed [641] a cut was made in that, and then he proceeded to outline what would be the result or effect upon the mass as a whole as a result of that cut, and in connection with that he worked out this formula by which he constructed the elastic curve.

Q. By the application of that formula what did he determine with reference to where the slide would occur when it did happen?

A. He could determine it very accurately.